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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:50:37 ; Search time 16 Seconds
(without alignments)
129.065 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQEQGA 40

Scoring table:

Gapop 10.0 , Gapext 0.5

Searched: 389414 seqs, 51625971 residues

Total number of hits satisfying chosen parameters: 389414

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Issued Patents AA.*

1: /cgn2_6/ptodata/2/iaa/5A COMB.pap.*
2: /cgn2_6/ptodata/2/iaa/5B COMB.pap.*
3: /cgn2_6/ptodata/2/iaa/6A COMB.pap.*
4: /cgn2_6/ptodata/2/iaa/6B COMB.pap.*
5: /cgn2_6/ptodata/2/iaa/PCTUS COMB.pap.*
6: /cgn2_6/ptodata/2/iaa/backfiles1.pap.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	198	100.0	40	4	US-09-624-268B-1
2	182	91.9	44	1	US-08-218-608-12
3	182	91.9	44	1	US-08-062-472B-29
4	182	91.9	44	1	US-08-062-472B-30
5	182	91.9	44	4	US-09-122-171D-5
6	182	91.9	44	4	US-09-122-171D-9
7	182	91.9	45	1	US-08-442-029-6
8	181	91.4	40	5	PCT-US91-09152-2
9	181	91.4	44	1	US-08-062-472B-28
10	181	91.4	44	4	US-09-122-171D-7
11	177	89.4	40	4	US-09-624-268B-14
12	177	89.4	44	1	US-08-062-472B-31
13	177	89.4	44	4	US-09-122-171D-6
14	176	88.9	44	4	US-09-122-171D-11
15	168	84.8	75	1	US-07-934-017-1
16	168	84.8	76	1	US-08-168-941-1
17	167	84.3	40	1	US-08-410-353-2
18	167	84.3	40	2	US-08-493-594-2
19	167	84.3	40	4	US-09-122-171D-10
20	167	84.3	41	1	US-08-095-162-7
21	167	84.3	41	1	US-08-410-353-7
22	167	84.3	41	1	US-08-470-220A-7
23	167	84.3	41	3	US-08-967-374-7
24	167	84.3	41	4	US-09-505-991-7
25	167	84.3	41	5	PCT-US95-15800-23
26	167	84.3	42	1	US-08-095-162-24
27	167	84.3	42	1	US-08-410-353-8

28	167	84.3	42	1	US-08-470-220A-24	Sequence 24, Appl
29	167	84.3	42	3	US-08-967-374-24	Sequence 24, Appl
30	167	84.3	42	4	US-09-505-991-24	Sequence 24, Appl
31	167	84.3	44	1	US-07-701-414A-1	Sequence 1, Appl
32	167	84.3	44	1	US-07-924-054-9	Sequence 9, Appl
33	167	84.3	44	1	US-08-095-162-16	Sequence 16, Appl
34	167	84.3	44	1	US-08-095-162-25	Sequence 25, Appl
35	167	84.3	44	1	US-08-379-039C-3	Sequence 3, Appl
36	167	84.3	44	1	US-08-062-472B-32	Sequence 32, Appl
37	167	84.3	44	1	US-08-410-353-1	Sequence 1, Appl
38	167	84.3	44	1	US-08-470-220A-16	Sequence 16, Appl
39	167	84.3	44	1	US-08-470-220A-25	Sequence 25, Appl
40	167	84.3	44	1	US-08-519-180-4	Sequence 4, Appl
41	167	84.3	44	2	US-08-661-329A-1	Sequence 1, Appl
42	167	84.3	44	2	US-08-493-594-1	Sequence 1, Appl
43	167	84.3	44	2	US-08-685-357B-1	Sequence 1, Appl
44	167	84.3	44	2	US-08-702-114-1	Sequence 1, Appl
45	167	84.3	44	2	US-08-702-113-1	Sequence 1, Appl

ALIGNMENTS

RESULT 1
US-09-624-268B-1
; Sequence 1, Application US/09624268B
; Patent No. 6551996
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; APPLICANT: Draghila-Akli, Ruxandra
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857051
; CURRENT APPLICATION NUMBER: US/09/624,268B
; PRIOR FILING DATE: 2000-07-24
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 40
; TYPE: PRT
; ORGANISM: Artificial sequence
; FEATURE:
; OTHER INFORMATION: Hormone
US-09-624-268B-1

Query Match 100.0%; Score 198; DB 4; Length 40;
Best Local Similarity 100.0%; Pred. No. 4e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

OY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQEQGA 40
Db 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQEQGA 40

RESULT 2
US-08-218-608-12
; Sequence 12, Application US/08218608
; Patent No. 5607859
; GENERAL INFORMATION:
; APPLICANT: BIEMANN, KLAUS
; APPLICANT: JUHASZ, PETER
; TITLE OF INVENTION: METHODS AND PRODUCTS FOR MASS
; TITLE OF INVENTION: SPECTROMETRIC MOLECULAR WEIGHT DETERMINATION OF POLYIONIC
; TITLE OF INVENTION: ANALYTES EMPLOYING POLYIONIC REAGENTS
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: WOLF, GREENFIELD & SACKS, P.C.
; STREET: 600 ATLANTIC AVENUE
; CITY: BOSTON
; STATE: MA

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;
; COUNTRY: USA
; ZIP: 02210
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/218,608
; FILING DATE: 28-MAR-1994
; CLASSIFICATION: 436
; ATTORNEY/AGENT INFORMATION:
; NAME: GATES, EDWARD R.
; REGISTRATION NUMBER: 31,616
; REFERENCE/DOCKET NUMBER: M0656/7013
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617-720-3500
; TELEFAX: 617-720-2441
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: NONE (SYNTHETIC BOVINE GROWTH HORMONE
; ORGANISM: RELEASING FACTOR)
; US-08-218-608-12

Query Match 91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40
Db 1 YADAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40

RESULT 3
US-08-062-472B-29
; Sequence 29, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McRory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 30:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-30

Query Match 91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40
Db 1 YADAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40

RESULT 3
US-08-062-472B-29
; Sequence 29, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McRory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 30:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-30
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;
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 29:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-29

Query Match 91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40
Db 1 YADAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40

RESULT 4
US-08-062-472B-30
; Sequence 30, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McRory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 30:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-30

Query Match 91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40
Db 1 YADAIFTNSYRKVLQASARKLLQDILNRQQGGRNQEGA 40
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RESULT 5
US-09-122-171D-5
; Sequence 5, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: US/09122,171D
; PRIOR FILING DATE: 1998-07-24
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Bos taurus GHRH
US-09-122-171D-5

Query Match          91.9%; Score 182; DB 4; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDILNRQOGERNQEGA 40

RESULT 6
US-09-122-171D-9
; Sequence 9, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 9
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Capra hircus GHRH
US-09-122-171D-9

Query Match          91.9%; Score 182; DB 4; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.5e-18;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDILNRQOGERNQEGA 40

RESULT 7
US-08-442-029-6
; Sequence 6, Application US/08442029
; Patent No. 5756458
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; GENERAL INFORMATION:
; APPLICANT: Kubiak, Teresa M.
; APPLICANT: Friedman, Alan R.
; TITLE OF INVENTION: Stabilized, Potent GRF Analogs
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Upjohn Company - Corp. Patents & Trademarks
; STREET: 301 Henrietta Street
; CITY: Kalamazoo
; STATE: Michigan
; COUNTRY: USA
; ZIP: 49001
; COMPUTER READABLE FORM:
; MEDIUM TYPE: diskette (3M 5-1/4", DS double side 500 KB)
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: WordPerfect 5.1
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/442,029
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/614,170
; FILING DATE: 14 No. 5756458 1990
; APPLICATION NUMBER: US 07/427,868
; FILING DATE: 27 Oct 1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US 07/368,231
; FILING DATE: 16 Jun 1989
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: PCT/US90/02923
; FILING DATE: 30 May 1990
; ATTORNEY/AGENT INFORMATION:
; NAME: William G. Jameson
; REGISTRATION NUMBER: 27,199
; REFERENCE/DOCKET NUMBER: 4552.3 CP
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 616 385 7561
; TELEFAX: 616 385 6897
; INFORMATION FOR SEQ ID NO: 6:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 45
; TYPE: amino acid
; TOPOLOGY: linear
; FEATURE:
; NAME/KEY: C-terminally amidated homoserine residue
; LOCATION: Xaa45
US-08-442-029-6

Query Match          91.9%; Score 182; DB 1; Length 45;
Best Local Similarity 92.5%; Pred. No. 6.7e-18;
Matches 37; Conservative 3; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40
Db 1 YVDAIFTNSYRKVLQAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 8
PCT-US91-09152-2
; Sequence 2, Application PC/TUS9109152
; GENERAL INFORMATION:
; APPLICANT: Kubiak, Teresa M.
; APPLICANT: Sharma, Satish K.
; TITLE OF INVENTION: Fusion Polypeptides
; NUMBER OF SEQUENCES: 42
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Upjohn Company - Corp. Patents & Trademarks
; STREET: 301 Henrietta Street
; CITY: Kalamazoo
; STATE: Michigan
; COUNTRY: USA
; ZIP: 49001
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RESULT 9
US-08-062-472B-28
Sequence 28, Application US/08062472B
Patent No. 5695954
GENERAL INFORMATION:
APPLICANT: Sherwood, Nancy G M
APPLICANT: Parker, David B
APPLICANT: McRory, John E
APPLICANT: Lescheid, David W
TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
NUMBER OF SEQUENCES: 49
CORRESPONDENCE ADDRESS:
ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
ADDRESSEE: WHINSTON, LLP
STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
STREET: SALMON STREET
CITY: PORTLAND
STATE: OREGON
COUNTRY: USA
ZIP: 97204-2988
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: Patent In Release #1.0, Version #1.30
CURRENT APPLICATION DATA:

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RESULT 11
US-09-624-268B-14
Sequence 14, Application US/09624268B
Patent No. 6551996
GENERAL INFORMATION:
APPLICANT: Schwartz, Robert
APPLICANT: Draghia-Akli, Ruxandra
TITLE OF INVENTION: Super-Active Porcine G
FILE REFERENCE: P01857U51
CURRENT APPLICATION NUMBER: US/09/624,268B
CURRENT FILING DATE: 2000-07-24
PRIOR APPLICATION NUMBER: US 60/145,624

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; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 14
; LENGTH: 40
; TYPE: PRT
; ORGANISM: PIG
US-09-624-268B-14

Query Match      89.4%; Score 177; DB 4; Length 40;
Best Local Similarity 87.5%; Pred. No. 2.8e-17;
Matches 35; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40
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Db 1 YADAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40

RESULT 12
US-08-062-472B-31
; Sequence 31, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McGorry, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; STREET: SALMON STREET
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 31:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
US-08-062-472B-31

Query Match      89.4%; Score 177; DB 1; Length 44;
Best Local Similarity 87.5%; Pred. No. 3.1e-17;
Matches 35; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40
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Db 1 YADAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40

us-10-021-403a-8.rai

RESULT 13
US-09-122-171D-6
; Sequence 6, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Sus scrofa GHRH
US-09-122-171D-6

Query Match      89.4%; Score 177; DB 4; Length 44;
Best Local Similarity 87.5%; Pred. No. 3.1e-17;
Matches 35; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40
: ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 YADAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40

RESULT 14
US-09-122-171D-11
; Sequence 11, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 11
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Artificial sequence
; FEATURE:
; OTHER INFORMATION: Mus/porcine chimeric growth hormone releasing hormone sequence
US-09-122-171D-11

Query Match      88.9%; Score 176; DB 4; Length 44;
Best Local Similarity 85.0%; Pred. No. 4.2e-17;
Matches 34; Conservative 5; Mismatches 1; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40
: ||||| ||||| ||||| ||||| ||||| ||||| ||||| |||||
Db 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQQGERNQOQA 40

RESULT 15
US-07-934-017-1
; Sequence 1, Application US/07934017
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Mon Jul 19 13:55:16 2004

; Patent No. 5352662
; GENERAL INFORMATION:
; APPLICANT: No. 5352662man D. Brooks and Gregory F. Needham
; TITLE OF INVENTION: Injectable Extended Release
; TITLE OF INVENTION: Formulations And Methods
; NUMBER OF SEQUENCES: 2
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Thomas Q. Henry
; STREET: Bank One Tower, Suite 3700,
; STREET: 111 Monument Circle
; CITY: Indianapolis
; STATE: Indiana
; COUNTRY: USA
; ZIP: 46204
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Diskette, 3.50 inch, 1.4 Mb storage
; COMPUTER: COMPAQ
; OPERATING SYSTEM: MSDOS
; SOFTWARE: ASCII
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/07/934,017
; FILING DATE: 19920821
; CLASSIFICATION: 514
; PRIOR APPLICATION DATA:
; APPLICATION NUMBER: US/07/769,555
; FILING DATE: October 1, 1991
; ATTORNEY/AGENT INFORMATION:
; NAME: Thomas Q. Henry
; REGISTRATION NUMBER: 28,309
; REFERENCE/DOCKET NUMBER: LLY X-7483A
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (317) 634-3456
; TELEFAX: (317) 637-7561
; INFORMATION FOR SEQ ID NO: 1:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 75 Amino Acids
; TYPE: AMINO ACIDS
; STRANDEDNESS: Single
; TOPOLOGY: Linear
; MOLECULE TYPE: Peptide
; US-07-934-017-1

Query Match 84.8%; Score 168; DB 1; Length 75;
Best Local Similarity 86.8%; Pred. No. 9.2e-16;
Matches 33; Conservative 4; Mismatches 1; Indels 0; Gaps 0;

Qy 3 DAIFTNYSRKVLQLSARKLLQDILNRQGGERNQOEGA 40
Db 2 DAIFTNYSRKVLQLSARKLLQDILNRQGGERNQOEGA 39

Search completed: July 12, 2004, 20:54:55
Job time : 17 secs

GenCore version 5.1.6
Copyright (c) 1993 - 2004 CompuGen Ltd.

OM protein - protein search, using sw model

Run on: July 12, 2004, 20:52:33 ; Search time 42.5 Seconds
(without alignments)
293.570 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFNYSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1279676 seqs, 311918243 residues

Total number of hits satisfying chosen parameters: 1279676

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : Published Applications AA.*

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4: /cgn2_6/ptodata/2/pubpaa/US06_PUBCOMB.pep.*
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9: /cgn2_6/ptodata/2/pubpaa/US09A_PUBCOMB.pep.*
10: /cgn2_6/ptodata/2/pubpaa/US09B_PUBCOMB.pep.*
11: /cgn2_6/ptodata/2/pubpaa/US09C_PUBCOMB.pep.*
12: /cgn2_6/ptodata/2/pubpaa/US09_NEW_PUB.pep.*
13: /cgn2_6/ptodata/2/pubpaa/US10A_PUBCOMB.pep.*
14: /cgn2_6/ptodata/2/pubpaa/US10B_PUBCOMB.pep.*
15: /cgn2_6/ptodata/2/pubpaa/US10C_PUBCOMB.pep.*
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18: /cgn2_6/ptodata/2/pubpaa/US60_PUBCOMB.pep.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	198	100.0	40	12	US-10-359-919A-1
2	198	100.0	40	12	US-10-315-907A-1
3	198	100.0	40	14	US-10-021-403A-8
4	198	100.0	40	14	US-10-262-141-1
5	198	100.0	40	14	US-10-262-377-1
6	198	100.0	40	15	US-10-395-709-1
7	192	97.0	40	12	US-10-359-919A-3
8	192	97.0	40	12	US-10-315-907A-3
9	192	97.0	40	15	US-10-395-709-3
10	191	96.5	40	12	US-10-359-919A-2
11	191	96.5	40	12	US-10-315-907A-2
12	191	96.5	40	15	US-10-395-709-2
13	188	94.9	40	12	US-10-359-919A-4
14	188	94.9	40	12	US-10-315-907A-4
15	188	94.9	40	15	US-10-395-709-4

16	182	91.9	44	14	US-10-124-759-5
17	182	91.9	44	14	US-10-124-759-9
18	181	91.4	44	14	US-10-124-759-7
19	177	89.4	40	12	US-10-359-919A-10
20	177	89.4	40	12	US-10-315-907A-10
21	177	89.4	40	14	US-10-262-141-14
22	177	89.4	40	14	US-10-262-377-14
23	177	89.4	40	15	US-10-395-709-5
24	177	89.4	40	15	US-10-395-709-10
25	177	89.4	44	14	US-10-124-759-6
26	176	88.9	44	14	US-10-124-759-11
27	170	85.9	40	12	US-10-359-919A-6
28	170	85.9	40	12	US-10-315-907A-6
29	170	85.9	40	15	US-10-395-709-6
30	167	84.3	40	14	US-10-124-759-10
31	167	84.3	40	14	US-10-021-403A-1
32	167	84.3	44	9	US-09-316-505-1
33	167	84.3	44	12	US-09-858-880-6
34	167	84.3	44	13	US-10-016-403-8
35	167	84.3	44	14	US-10-197-954-77
36	167	84.3	44	14	US-10-224-640-1
37	167	84.3	44	15	US-10-360-101-262
38	167	84.3	70	12	US-10-449-831A-226
39	167	84.3	108	14	US-10-147-087-2
40	165	83.3	44	12	US-10-359-919A-5
41	165	83.3	44	12	US-10-315-907A-5
42	163	82.3	44	14	US-10-004-530A-20
43	162	81.8	44	15	US-10-360-101-175
44	159	80.3	44	9	US-09-420-785A-1
45	157	79.3	44	13	US-10-016-403-9

ALIGNMENTS

RESULT 1

US-10-359-919A-1
; Sequence 1, Application US/10359919A
; Publication No. US20040038918A1
; GENERAL INFORMATION:
; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant ;
; TITLE OF INVENTION: animals treated with GHRH
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 1
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.
US-10-359-919A-1

Query Match 100.0%; Score 198; DB 12; Length 40;
Best Local Similarity 100.0%; Pred. No. 2.1e-20;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HVDAIFNYSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
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Db 1 HVDAIFNYSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
|||||

RESULT 2

US-10-315-907A-1
; Sequence 1, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: PLASMIN MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUB.
; FILE REFERENCE: 108328.00073 - AVSI-0007

; CURRENT APPLICATION NUMBER: US/10/315,907A
 ; CURRENT FILING DATE: 2002-12-10
 ; NUMBER OF SEQ ID NOS: 25
 ; SOFTWARE: PatentIn version 3.1
 ; SEQ ID NO 1
 ; LENGTH: 40
 ; TYPE: PRT
 ; ORGANISM: artificial sequence
 ; FEATURE:
 ; OTHER INFORMATION: This is a GHRH analog.
 US-10-315-907A-1

Query Match 100.0%; Score 198; DB 12; Length 40;
 Best Local Similarity 100.0%; Pred. No. 2.1e-20;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
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 Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 3

US-10-021-403A-8
 ; Sequence 8, Application US/10021403A
 ; Publication No. US20030074679A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Advisys
 ; TITLE OF INVENTION: Administration of Nucleic Acid Sequence to Female Animal to Enhance
 ; TITLE OF INVENTION: Growth in Offspring
 ; FILE REFERENCE: HO-P02021US1/100021476/OTA 00-91
 ; CURRENT APPLICATION NUMBER: US/10/021,403A
 ; CURRENT FILING DATE: 2002-04-11
 ; PRIOR APPLICATION NUMBER: 60/255,021
 ; PRIOR FILING DATE: 2000-12-12
 ; NUMBER OF SEQ ID NOS: 11
 ; SOFTWARE: PatentIn version 3.1
 ; SEQ ID NO 8
 ; LENGTH: 40
 ; TYPE: PRT
 ; ORGANISM: artificial sequence
 ; FEATURE:
 ; OTHER INFORMATION: This amino acid sequence is an synthetic analog of "growth hormone
 ; OTHER INFORMATION: e releasing hormone" ("GHRH").
 US-10-021-403A-8

Query Match 100.0%; Score 198; DB 14; Length 40;
 Best Local Similarity 100.0%; Pred. No. 2.1e-20;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
 |||||
 Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 4

US-10-262-141-1
 ; Sequence 1, Application US/10262141
 ; Publication No. US20030129172A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Schwartz, Robert
 ; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
 ; FILE REFERENCE: P01857US1
 ; CURRENT APPLICATION NUMBER: US/10/262,141
 ; CURRENT FILING DATE: 2002-09-20
 ; PRIOR APPLICATION NUMBER: US 60/145,624
 ; PRIOR FILING DATE: 1999-07-26
 ; PRIOR APPLICATION NUMBER: PCT/US00/20127
 ; PRIOR FILING DATE: 2000-07-24
 ; NUMBER OF SEQ ID NOS: 14
 ; SOFTWARE: PatentIn version 3.1
 ; SEQ ID NO 1
 ; LENGTH: 40
 ; TYPE: PRT
 ; ORGANISM: artificial sequence
 ; FEATURE:
 ; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
 US-10-395-709-1

Query Match 100.0%; Score 198; DB 15; Length 40;
 Best Local Similarity 100.0%; Pred. No. 2.1e-20;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

; TYPE: PRT
 ; ORGANISM: Artificial sequence
 ; FEATURE:
 ; OTHER INFORMATION: Hormone
 US-10-262-141-1

Query Match 100.0%; Score 198; DB 14; Length 40;
 Best Local Similarity 100.0%; Pred. No. 2.1e-20;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
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 Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 5

US-10-262-377-1
 ; Sequence 1, Application US/10262377
 ; Publication No. US20030148948A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Schwartz, Robert
 ; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
 ; FILE REFERENCE: P01857US1
 ; CURRENT APPLICATION NUMBER: US/10/262,377
 ; CURRENT FILING DATE: 2000-07-24
 ; PRIOR APPLICATION NUMBER: US 60/145,624
 ; PRIOR FILING DATE: 1999-07-26
 ; PRIOR APPLICATION NUMBER: PCT/US00/20127
 ; PRIOR FILING DATE: 2000-07-24
 ; NUMBER OF SEQ ID NOS: 14
 ; SOFTWARE: PatentIn version 3.1
 ; SEQ ID NO 1
 ; LENGTH: 40
 ; TYPE: PRT
 ; ORGANISM: Artificial sequence
 ; FEATURE:
 ; OTHER INFORMATION: Hormone
 US-10-262-377-1

Query Match 100.0%; Score 198; DB 14; Length 40;
 Best Local Similarity 100.0%; Pred. No. 2.1e-20;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
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 Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40

RESULT 6

US-10-395-709-1
 ; Sequence 1, Application US/10395709
 ; Publication No. US20040014645A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Advisys
 ; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE
 ; FILE REFERENCE: GLUTAMATE ("PLG") SYSTEM
 ; FILE REFERENCE: 108328.00115 - AVSI-0021PI
 ; CURRENT APPLICATION NUMBER: US/10/395,709
 ; CURRENT FILING DATE: 2003-03-24
 ; NUMBER OF SEQ ID NOS: 25
 ; SOFTWARE: PatentIn version 3.1
 ; SEQ ID NO 1
 ; LENGTH: 40
 ; TYPE: PRT
 ; ORGANISM: artificial sequence
 ; FEATURE:
 ; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
 US-10-395-709-1

Query Match 100.0%; Score 198; DB 15; Length 40;
 Best Local Similarity 100.0%; Pred. No. 2.1e-20;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
|||||
Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 7
US-10-359-919A-3
; Sequence 3, Application US/10359919A
; Publication No. US20040038918A1
; GENERAL INFORMATION:
; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT FILING DATE: 2003-02-06
; CURRENT APPLICATION NUMBER: US/10/359,919A
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.
US-10-359-919A-3

Query Match 97.0%; Score 192; DB 12; Length 40;
Best Local Similarity 97.5%; Pred. No. 1.4e-19;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
|||||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 8
US-10-315-907A-3
; Sequence 3, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advivys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUE
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-3

Query Match 97.0%; Score 192; DB 12; Length 40;
Best Local Similarity 97.5%; Pred. No. 1.4e-19;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
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Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 9
US-10-395-709-3
; Sequence 3, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advivys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE POL
; TITLE OF INVENTION: GLUTAMATE ("PLG") SYSTEM

; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 3
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
US-10-395-709-3

Query Match 97.0%; Score 192; DB 15; Length 40;
Best Local Similarity 97.5%; Pred. No. 1.4e-19;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
|||||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 10
US-10-359-919A-2
; Sequence 2, Application US/10359919A
; Publication No. US20040038918A1
; GENERAL INFORMATION:
; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; FILE REFERENCE: 108328.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a growth hormone releasing hormone ("GHRH") analog.
US-10-359-919A-2

Query Match 96.5%; Score 191; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 2e-19;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40
:|||
Db 1 YVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQA 40

RESULT 11
US-10-315-907A-2
; Sequence 2, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advivys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUE
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-2

Query Match 96.5%; Score 191; DB 12; Length 40;

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Best Local Similarity 95.0%; Pred. No. 2e-19; Mismatches 0; Indels 0; Gaps 0;
Matches 38; Conservative 2;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
:|||||
Db 1 YIDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
:|||||

RESULT 12
US-10-395-709-2
; Sequence 2, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE POL
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 2
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a GHRH analog.
US-10-315-907A-4
Query Match 94.9%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 5.3e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
:|||||
Db 1 YADAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
:|||||

RESULT 15
US-10-395-709-4
; Sequence 4, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE POL
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 4
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is a functional biological equivalent of GHRH.
US-10-395-709-4
Query Match 94.9%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 5.3e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
:|||||
Db 1 YADAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQEGA 40
:|||||

Search completed: July 12, 2004, 20:57:45
Job time : 42.5 secs
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GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:46:47 ; Search time 13 Seconds
(without alignments)
295.974 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283366 seqs, 96191526 residues

Total number of hits satisfying chosen parameters: 283366

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

PIR 78:*

1: pir1:*

2: pir2:*

3: pir3:*

4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	182	91.9	44	1 RHOS	somatoliberin - bo
2	177	89.4	44	1 RHFG	somatoliberin - pi
3	167	84.3	108	1 RHUS	somatoliberin prec
4	154	77.8	104	2 A32731	somatoliberin prec
5	134.5	67.9	103	2 A41410	somatoliberin prec
6	82	41.4	173	2 S34767	neuropeptides prec
7	81	40.9	28	2 A38232	vasoactive intesti
8	79	39.9	55	1 VRGP	vasoactive intesti
9	77	38.9	145	2 A60038	vasoactive intesti
10	77	38.9	170	1 VRHU	vasoactive intesti
11	77	38.9	175	2 A37786	vasoactive intesti
12	76.5	38.6	170	1 VVRT	pituitary adenyliat
13	76.5	38.6	170	2 A60037	vasoactive intesti
14	76	38.4	55	1 VRBO	vasoactive intesti
15	76	38.4	55	1 VRSH	vasoactive intesti
16	74.5	37.6	165	1 VRCH	vasoactive intesti
17	73	36.9	195	2 I50456	pituitary adenyliat
18	72	36.4	35	1 HWGHD	exendin-2 - Gila m
19	72	36.4	55	1 VRBR	vasoactive intesti
20	72	36.4	58	1 VRPG	vasoactive intesti
21	70	35.4	28	2 B60071	vasoactive intesti
22	70	35.4	28	2 A60304	vasoactive intesti
23	70	35.4	38	1 HWGHS	vasoactive intesti
24	70	35.4	38	2 A61070	exendin-1 - Mexica
25	70	35.4	176	2 A34044	pituitary adenyliat
26	70	35.4	176	2 A34044	pituitary adenyliat
27	65	32.8	38	2 A49165	pituitary adenyliat
28	62.5	31.6	178	2 I51058	glucagon I precurs
29	62.5	31.6	178	2 I51057	glucagon II precur

ALIGNMENTS

RESULT 1

RHOS

somatoliberin - bovine

N:Alternate names: growth hormone-releasing factor

C:Species: Bos primigenius taurus (cattle)

C>Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C:Accession: A01554

R:Esch, F.; Bohlen, P.; Ling, N.; Brazeau, P.; Guillemin, R.

Biochem. Biophys. Res. Commun. 117, 772-779, 1983

A:Title: Isolation and characterization of the bovine hypothalamic growth hormone release

A:Reference number: A01554; PMID:84127993; PMID:6421287

A:Accession: A01554

A:Molecule type: protein

A:Residues: 1-44 <BSC>

C:Comment: This protein was isolated from hypothalamus.

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; duplication; hypothalamus

F:44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match 91.9%; Score 182; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 6.1e-17;
Matches 36; Conservative 2; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQGA 40

Db 1 YADAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQGA 40

RESULT 2

RHFG

somatoliberin - pig

N:Alternate names: growth hormone-releasing factor

C:Species: Sus scrofa domestica (domestic pig)

C>Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C:Accession: A01553

R:Bohlen, P.; Esch, F.; Brazeau, P.; Ling, N.; Guillemin, R.

Biochem. Biophys. Res. Commun. 116, 726-734, 1983

A:Title: Isolation and characterization of the porcine hypothalamic growth hormone relea

A:Reference number: A01553; PMID:84079886; PMID:6418166

A:Accession: A01553

A:Molecule type: protein

A:Residues: 1-44 <BOH>

C:Comment: The carboxyl-amidated somatoliberin is twice as active as that having a free

C:Comment: This protein was isolated from hypothalamus.

C:Superfamily: glucagon

C:Keywords: amidated carboxyl end; duplication; hypothalamus

F:44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match 89.4%; Score 177; DB 1; Length 44;

Best Local Similarity 87.5%; Pred. No. 2.7e-16;

Matches 35; Conservative 3; Mismatches 2; Indels 0; Gaps 0;

RESULT 3

RESULT 5
A41410
somatoliberin precursor - mouse
N:Alternate names: growth hormone-releasing hormone precursor
C:Species: Mus musculus (house mouse)
C:Date: 03-Apr-1992 #sequence_revision 03-Apr-1992 #text_change 16-Jul-1999
C:Accession: A41410
R:Frohman, M.A.; Downs, T.R.; Chomczynski, P.; Frohman, L.A.
Mol. Endocrinol. 3, 1529-1536, 1989
A:Title: Cloning and characterization of mouse growth hormone-releasing hormone


```

Query Match          38.4%; Score 76; DB 1; Length 55;
Best Local Similarity 42.9%; Pred No. 0.0046; 7; Indels
Matches 12; Conservative 9; Mismatches 0; Gaps 0;
QY      1 HVDALFTNSYRKVLQAQLSARKLLQDILN 28
        ||||| :||: ||||| :||: ||||| :||:
DB       1 HADGVFTSDYSRLGQLSAKKYLESLIH 28

Search completed: July 12, 2004, 20:53:07
Job time: 14 secs
```

RESULT 15
VRSH
vasoactive intestinal peptide precursor - sheep (fragments)
N:Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Date: 31-Mar-1993 #sequence revision 19-Apr-1996 #text_change 20-Mar-1998
C:Accession: B60072; A60072; G61063; A43974
R:Bounjoua, Y.; Vandermeers, A.; Robberecht, P.; Vandermeers-Piret, M.C.; Christophe, J.
Regul. Pept. 32, 169-179, 1991
A:Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A:Reference number: A60072; MUID:91239834; PMID:2034821
A:Accession: B60072
A:Molecule type: protein
A:Residues: 1-27 <BOU>
A:Accession: A60072
A:Molecule type: protein
A:Residues: 28-55 <BO2>
R:Miyata, A.; Jiang, L.; Stibbs, H.H.; Arimura, A.
Regul. Pept. 38, 145-154, 1992
A:Title: Chemical characterization of vasoactive polypeptide-like immunoreact
A:Accession: G61063. MUID:92245116; PMID:1574609

A;Accession num062
A;Accession: C61063
A;Molecule type: protein
A;Residues: 28-55 <MIY>
A;Experimental source: hypothalamus, intestine
R;Gafvelin, G.
Peptides 11, 703-706, 1990
A;Title: Isolation and primary structure of VIP from sheep brain.
A;Reference number: A43974; MUID:91045331; PMID:2325680
A;Accession: A43974
A;Molecule type: protein
A;Residues: 28-55 <GAF>
A;Experimental source: brain
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; brain; duplication; hormone; intestine; neuropeptide;
F;1-27/Product: peptide histidine-isoleucine #status experimental <pHI>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (asn) (in mature form) #status experimental

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:42:46 ; Search time 10 Seconds
(without alignments)
208.281 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTSYRKVLQAQLSARKLLQDILNRQQGERNOEQA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 141681 seqs, 52070155 residues

Total number of hits satisfying chosen parameters: 141681

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_42.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query %	Match	Length	DB	ID	Description
1	182	91.9	106	1	SLIB_BOVIN	P01288	bos taurus
2	181	91.4	44	1	SLIB_SHEEP	P07217	ovis aries
3	177	89.4	44	1	SLIB_PIG	P01287	sus scrofa
4	168	84.8	107	1	SLIB_MESAU	Q60549	mesocricetu
5	167	84.3	108	1	SLIB_HUMAN	P01286	homo sapien
6	154	77.8	104	1	SLIB_RAT	P09916	rattus norv
7	134.5	67.9	103	1	SLIB_MOUSE	P16043	mus musculu
8	82	41.4	173	1	PACA_ONCNE	P41585	oncorhynch
9	82	41.4	175	1	PACA_CHICK	P41534	g glucagon-
10	81	40.9	28	1	VIP_DIDMA	P39089	didelphis m
11	81	40.9	45	1	SLIB_CYPCA	P42692	cyprinus ca
12	78	39.4	72	1	VIP_CAVPO	P04566	cavia porce
13	78	39.4	175	1	PACA_MOUSE	O70176	m pituitary
14	77	38.9	170	1	VIP_HUMAN	P01282	homo sapien
15	77	38.9	175	1	PACA_RAT	P13589	r pituitary
16	76.5	38.6	170	1	VIP_MOUSE	P32648	mus musculu
17	76.5	38.6	170	1	VIP_RAT	P01283	rattus norv
18	75	37.9	72	1	VIP_BOVIN	P81401	bos taurus
19	74.5	37.6	200	1	VIP_CHICK	P48143	gallus gall
20	74.5	37.6	200	1	VIP_MELGA	P45644	meleagris g
21	73	36.9	195	1	PACA_CLAMA	P48144	clarias mac
22	72	36.4	35	1	EXE1_HELNU	P04204	heloderma s
23	72	36.4	266	1	GLUC_XENLA	O42143	xenopus lae
24	71	35.9	72	1	VIP_PIG	P01284	sus scrofa
25	71	35.9	72	1	VIP_RABIT	P32649	oryctolagus
26	70	35.4	28	1	VIP_SHEEP	P04565	ovis aries
27	70	35.4	38	1	EXE1_HELNU	P04203	heloderma s
28	70	35.4	73	1	PACA_PIG	P41535	s pituitary
29	70	35.4	171	1	PACA_RANRI	Q09169	r pituitary
30	70	35.4	176	1	PACA_HUMAN	P18509	h pituitary
31	70	35.4	176	1	PACA_SHEEP	P16613	o pituitary
32	67	33.8	38	1	PACA_URAJA	P81039	uranoscopus
33	62	31.3	28	1	VIP_SCYCA	P09685	scyllorhinu

34	61.5	31.1	248	1	RSRL_CANAL	P52498	candida alb
35	61	30.8	28	1	VIP_ALIMI	P48142	alligator m
36	61	30.8	28	1	VIP_RANRI	P81016	rana ridibu
37	59	29.8	206	1	GLUC_CHICK	P01277	gallus gall
38	58	29.3	25	1	VIP_GADMO	P09684	gadus morhu
39	58	29.3	204	1	GLUC_HELNU	Q12956	heloderma s
40	58	29.3	520	1	HMCS_HUMAN	Q01581	homo sapien
41	56.5	28.5	1377	1	RPOC_BORBU	O51349	borrelia bu
42	56	28.3	181	1	YNV2_CAEEL	P34565	caenorhabdi
43	54	27.3	520	1	HMCS_RAT	P17425	rattus norv
44	53	26.8	27	1	SECR_CHICK	P01280	gallus gall
45	52	26.3	81	1	VPU_HVIB1	P05920	human immu

ALIGNMENTS

RESULT 1
SLIB_BOVIN STANDARD; PRT; 106 AA.
ID SLIB_BOVIN Q9MZD4;
AC P01288; Q9MZD4;
DT 21-JUL-1986 (Rel. 01, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Bos taurus (Bovine), and
OS Capra hircus (Goat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913, 9925;
RN [1] _SEQUENCE FROM N.A.
RP SPECIES=Bovine;
RC Zhou P., Kazmer G.W., Yang X.;
RA Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
RN [2]
RP SEQUENCE OF 31-74.
RC SPECIES=Bovine;
RX MEDLINE=84127993; PubMed=6421287;
RA Esch F., Boehlen P., Ling N., Brazeau P., Guillemin R.;
RT "Isolation and characterization of the bovine hypothalamic growth
hormone releasing factor.";
RL Biochem. Biophys. Res. Commun. 117:772-779(1983).
RN [3]
RP SEQUENCE OF 31-74.
RC SPECIES=C.hircus;
RX MEDLINE=85096956; PubMed=6440561;
RA Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B.,
Guillemin R.;
RT "Growth hormone-releasing factor from ovine and caprine hypothalamus:
Isolation, sequence analysis and total synthesis.";
RL Biochem. Biophys. Res. Commun. 125:606-614(1984).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
adenohypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.

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EMBL; AF242855; AAF89171.1; -
InterPro: IPR000532; Glucagon.
Pfam; PF00123; hormone; 1.
SMART; SMO0070; GLUCA; 1.
PROSITE; PS00260; GLUCAGON; 1.

KW Glucagon family; Signal; Amidation; Hypothalamus.
FT SIGNAL 1 19 POTENTIAL.
FT PEPTIDE 31 74 SOMATOLIBERIN.
FT MOD_RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP).
SQ SEQUENCE 106 AA; 12058 MW; 6584F4F25ABEF178 CRC64;

Query Match 91.4%; Score 182; DB 1; Length 106;
Best Local Similarity 90.0%; Pred. No. 1.2e-17; Indels 0; Gaps 0;
Matches 36; Conservative 2; Mismatches 2;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQGA 40
Db 31 YADAIFTNSYRKVLQQLSARKLLQDILNRQQGERNQEQGA 70

RESULT 2
SLIB_SHEEP STANDARD; PRT; 44 AA.
AC P07217;
DT 01-APR-1988 (Rel. 07, Created)
DT 01-APR-1988 (Rel. 07, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Ovis aries (Sheep).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae; Caprinae; Ovis.
OC NCBI_TaxID=9940;
[1]
RN SEQUENCE.
RX MEDLINE=85096956; PubMed=6440561;
RA Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B., Guillemin R.;
RT "Growth hormone-releasing factor from ovine and caprine hypothalamus: isolation, sequence analysis and total synthesis."
RL Biochem. Biophys. Res. Commun. 125:606-614(1984).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenohipophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE: PS00260; GLUCAGON; 1.
KW Glucagon family; Amidation; Hypothalamus.
FT MOD_RES 44 44 AMIDATION.
FT MOD_RES 44 44
SQ SEQUENCE 44 AA; 5123 MW; 9F907C6769F48030 CRC64;

Query Match 91.4%; Score 181; DB 1; Length 44;
Best Local Similarity 87.5%; Pred. No. 6.4e-18; Indels 0; Gaps 0;
Matches 35; Conservative 3; Mismatches 2;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQGA 40
Db 1 YADAIFTNSYRKVLQQLSARKLLQDILNRQQGERNQEQGA 40

RESULT 3
SLIB_PIG STANDARD; PRT; 44 AA.
AC P01287;
DT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH.
OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OC NCBI_TaxID=9823;
[1]

RN SEQUENCE.
RP TISSUE=Hypothalamus;
RX MEDLINE=84079896; PubMed=6418166;
RA Boehlen P., Esch F., Brazeau P., Ling N., Guillemin R.;
RT "Isolation and characterization of the porcine hypothalamic growth hormone releasing factor."
RL Biochem. Biophys. Res. Commun. 116:726-734(1983).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenohipophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- MISCELLANEOUS: The carboxyl-amidated somatoliberin is twice as active as that having a free carboxyl end.
CC -!- SIMILARITY: Belongs to the glucagon family.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE: PS00260; GLUCAGON; 1.
KW Glucagon family; Amidation; Hypothalamus.
FT MOD_RES 44 44 AMIDATION.
FT MOD_RES 44 44
SQ SEQUENCE 44 AA; 5110 MW; 1271DC7059F4802E CRC64;

Query Match 89.4%; Score 177; DB 1; Length 44;
Best Local Similarity 87.5%; Pred. No. 2.2e-17; Indels 0; Gaps 0;
Matches 35; Conservative 3; Mismatches 2;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQQGERNQEQGA 40
Db 1 YADAIFTNSYRKVLQQLSARKLLQDILNRQQGERNQEQGA 40

RESULT 4
SLIB_MESAU STANDARD; PRT; 107 AA.
ID SLIB_MESAU
AC Q60549;
DT 15-JUL-1998 (Rel. 36, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH OR GRF.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae; Mesocricetus.
OC NCBI_TaxID=10036;
[1]
RN SEQUENCE FROM N.A.
RP TISSUE=Hypothalamus;
RX MEDLINE=95218216; PubMed=7703510;
RA Ono M., Miki N., Demura H., Tadokoro K., Nagafuchi S., Yamada M.;
RT "Molecular cloning of cDNA encoding the precursor for hamster hypothalamic growth hormone-releasing factor."
RL DNA Seq. 5:93-102(1994).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenohipophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
[1]
CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial entities requires a license agreement (See <http://www.isb-sib.ch/announce/> or send an email to license@isb-sib.ch).
CC
CC EMBL; D23671; BAA04901.1; -.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE: PS00260; GLUCAGON; 1.

KW Glucagon family; Signal; Amidation; Hypothalamus.
FT SIGNAL 1 19 POTENTIAL.
FT PEPTIDE 31 74 SOMATOLIBERIN.
FT MOD_RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP) (BY
SQ SEQUENCE 107 AA; 12298 MW; 3DEFA8D4B3F7636 CRC64;
SIMILARITY).

Query Match 84.8%; Score 168; DB 1; Length 107;
Best Local Similarity 84.8%; Pred. No. 9.6e-16;
Matches 33; Conservative 4; Mismatches 2; Indels 0; Gaps 0;
QY 1 HVDAIFTSYRKVLQSLARKLQDILNRQGERNQEQG 39
DQ 31 YADAIFTSSYRKVLQSLARKLQDILNRQGERNQEQG 69

RESULT 5
SLIB HUMAN STANDARD; PRT; 108 AA.
AC P01286;
DT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE (Growth hormone-releasing hormone) (GHRH) (Somatocortin) (Sermorelin).
GN GHRH OR GHRF.
OS Homo sapiens (Human).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
OX NCBI_TaxID=9606;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=83273612; PubMed=6192430;
RA Gubler U., Monahan J.J., Lomedico P.T., Bhatt R.S., Collier K.J.,
RA Hoffman B.J., Boehlen P., Esch F., Ling N., Zeytin F., Brazeau P.,
RA Poonian M.S., Gage L.P.;
RT "Cloning and sequence analysis of cDNA for the precursor of human
RT growth hormone-releasing factor, somatocortin";
RL Proc. Natl. Acad. Sci. U.S.A. 80:4311-4314(1983).
RN [2]
RP SEQUENCE FROM N.A.
RX MEDLINE=85113171; PubMed=3918305;
RA Mayo K.E., Cerelli G.M., Lebo R.V., Bruce B.D., Rosenfeld M.G.,
RA Evans R.M.;
RT "Gene encoding human growth hormone-releasing factor precursor:
RT structure, sequence, and chromosomal assignment";
RL Proc. Natl. Acad. Sci. U.S.A. 82:63-67(1985).
RN [3]
RP SEQUENCE FROM N.A.
RX MEDLINE=21638749; PubMed=11780052;
RA Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R.,
RA Jones M., Stavrides G., Almeida J.P., Babbage A.K., Baggeley C.L.,
RA Bailey J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M.,
RA Beasley O.P., Bird C.P., Blakey S.E., Bridgman A.M., Brown A.J.,
RA Buck D., Burrill W.D., Butler A.P., Carder C., Carter N.P.,
RA Chapman J.C., Clamp M., Clark G., Clark L.N., Clark S.Y., Clee C.M.,
RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R.,
RA Coulson A., Coville G.J., Deadman R., Dhami P.D., Dunn M.,
RA Ellington A.G., Frankland J.A., Fraser A., French L., Garner P.,
RA Grahman D.V., Griffiths C., Griffiths M.N.D., Gwilliam R., Hall R.E.,
RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J.,
RA Hack M.P., Hunt A.R., Hunt S.E., Jekosch K., Johnson C.M., Johnson D.,
RA Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S.,
RA Lehaeslaio M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D.,
RA Marsh V.L., Martin S.L., McConachie L.J., McLeay K., McMurray A.A.,
RA Milne S.A., Mistry D., Moore M.J.F., Mullikin J.C., Nickerson T.,
RA Oliver K., Parker A., Patel R., Pearce T.A.V., Peck A.I.,
RA Phillimore B.J.C.T., Prathalingam S.R., Plumb R.W., Ramsay H.,
RA Rice C.M., Ross M.T., Scott C.E., Sehra H.K., Showkeen R., Sims S.,
RA Skuce C.D., Smith M.L., Soderlund C., Steward C.A., Sulston J.E.,
RA Swann R.M., Sycamore N., Taylor R., Tee L., Thomas D.W., Thorpe A.,
RA Tracey A., Iromans A.C., Vaudin M., Wall M., Wallis J.M.,
RA Whitehead S.L., Whittaker P., Willey D.L., Williams L., Williams S.A.,

RA Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
RA Rogers J.;
RT "The DNA sequence and comparative analysis of human chromosome 20.";
RL Nature 414:865-871(2001).
RN [4]
RP SEQUENCE OF 6-101 FROM N.A.
RX MEDLINE=84039819; PubMed=6415488;
RA Mayo K.E., Vale W., Rivier J., Rosenfeld M.G., Evans R.M.;
RT "Expression-cloning and sequence of a cDNA encoding human growth
RT hormone-releasing factor";
RL Nature 306:86-88(1983).
RN [5]
RP SEQUENCE OF 32-75.
RX MEDLINE=83016666; PubMed=6812220;
RA Guillemin R., Brazeau P., Boehlen P., Esch F., Ling N.,
RA Wehrenberg W.B.;
RT "Growth hormone-releasing factor from a human pancreatic tumor that
RT caused acromegaly";
RL Science 218:585-587(1982).
RN [6]
RP STRUCTURE BY NMR OF 32-60.
RX MEDLINE=89220972; PubMed=2854259;
RA Bruenger A.T., Clore G.M., Gronenborn A.M., Karplus M.;
RT "Solution conformations of human growth hormone releasing factor:
RT comparison of the restrained molecular dynamics and distance geometry
RT methods for a system without long-range distance data";
RL Protein Eng. 1:399-406(1987).
RN [7]
RP STRUCTURE BY NMR OF 32-60.
RX MEDLINE=87141181; PubMed=3029387;
RA Clore G.M., Martin S.R., Gronenborn A.M.;
RT "Solution structure of human growth hormone releasing factor.
RT Combined use of circular dichroism and nuclear magnetic resonance
RT spectroscopy";
RL J. Mol. Biol. 191:553-561(1986).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenohypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- PHARMACEUTICAL: Available under the names Geref (Serono). Geref is
CC a synthetic acetylated form of residues 1 to 29 of GHRH. Used
CC for the treatment of growth hormone deficiency.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC or send an email to license@isb-sib.ch).
CC
CC EMBL; L29177; -; NOT ANNOTATED_CDS.
CC EMBL; L00137; AAA52608.1; -;
CC EMBL; L00134; AAA52608.1; JOINED.
CC EMBL; L00135; AAA52608.1; JOINED.
CC EMBL; L00136; AAA52608.1; JOINED.
CC EMBL; L00137; AAA52609.1; -;
CC EMBL; L00134; AAA52609.1; JOINED.
CC EMBL; L00135; AAA52609.1; JOINED.
CC EMBL; L00136; AAA52609.1; JOINED.
CC EMBL; AL031659; CAB41762.1; -;
CC EMBL; X00094; CAA24955.1; -;
CC EMBL; X00094; CAA24956.1; -;
CC PIR; A21902; RHHS.
CC Genew; HGNC:4265; GHRH.
CC MIM; 139190; -;
CC GO; GO:0005102; F:receptor binding; TAS.
CC GO; GO:0007267; P:cell-cell signaling; TAS.
CC GO; GO:0007165; P:signal transduction; TAS.
CC InterPro; IPR000532; Glucagon.
CC Pfam; PF00123; hormone2; 1.
CC SMART; SM00070; GLUCA; 1.
CC PROSITE; PS00260; GLUCAGON; 1.

[illegible][illegible]

```

DR PIR; A41410; A41410.
DR MGD; MGI:95709; Ghrh.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Signal; Hypothalamus.
FT SIGNAL 1
FT PEPTIDE 31 72
SQ SEQUENCE 103 AA; 12064 MW; F3BA6870BF2CA8DC CRC64;

Query Match 67.9%; Score 134.5; DB 1; Length 103;
Best Local Similarity 70.0%; Pred. No. 3e-11;
Matches 28; Conservative 7; Mismatches 4; Indels 1; Gaps 1;

QY 1 HVDAIFTNSRYKVLQAQLSARKLLQDILNRQGRNQEQGA 40
DQ 31 HVDAIFTNRYKLLSQLYARKVIQIMNK-QGERIQEQA 69

RESULT 8
PACA_OCNCE
ID_PACA_OCNCE STANDARD; PRT; 173 AA.
AC P41585;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE Pituitary adenylate cyclase activating polypeptide (PACAP)].
OS Oncorhynchus nerka (Sockeye salmon).
CC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
CC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
CC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
EN NCBI_TaxID=8023;
RX
RN
RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RT TISSUE=Brain;
RX MEDLINE=93345532; PubMed=8344311;
RA Parker D.B., Coe I.R., Dixon G.H., Sherwood N.M.;
RA "Two salmon neuropeptides encoded by one brain cDNA are structurally
RT related to members of the glucagon superfamily.";
RL Eur. J. Biochem. 215:439-448(1993).
CC
CC -!- FUNCTION: Primary role of GHRH is to release GH from the
CC pituitary.
CC -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC neuromodulator.
CC
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Name=Long;
CC IsoId=P41585-1; Sequence=Displayed;
CC Name=Short;
CC IsoId=P41585-2; Sequence=VSP_001762, VSP_001763;
CC Note=Lacks the GHRH-like sequence;
CC -!- POLYMORPHISM: Four clones were identified that had nucleotide
CC differences.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC
CC -----
CC ENBL; X73233; CAA51705.1; AUT_SEQ.
CC PIR; S34767; S34767.
CC InterPro; IPR000532; Glucagon.
CC Pfam; PF00123; hormone2; 2.
CC PRINTS; PR00275; GLUCAGON.
CC SMART; SM00070; GLUCA; 2.

```


DB 86 ILNEYARKVLDQLSARKYQSVVARGAGE 114

RESULT 14

VIP HUMAN STANDARD; PRT; 170 AA.

ID VIP HUMAN

AC P01282; Q96QK3;

DT 21-JUL-1986 (Rel. 01, Created)

DT 21-JUL-1986 (Rel. 01, Last sequence update)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DE Vasoactive intestinal peptide precursor (VIP).

GN VIP.

OS Homo sapiens (Human).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.

OC NCBI_TaxID=9606;

RN [1]

RP MEDLINE=83271523; PubMed=6571696;

RX Itoh N., Obata K.-I., Yanaihara N., Okamoto H.;

RA "Human preprovasoactive intestinal polypeptide contains a novel

RT PHI-27-like peptide, PHM-27.;"

RL Nature 304:547-549(1983).

[2]

RN SEQUENCE FROM N.A.

RP MEDLINE=88267775; PubMed=2839091;

RX Yamagami T., Ohsawa K., Nishizawa M., Inoue C., Gotoh E.;

RA Yanaihara N., Yamamoto H., Okamoto H.;

RT "Complete nucleotide sequence of human vasoactive intestinal

RT peptide/PHM-27 gene and its inducible promoter.;"

RL Ann. N.Y. Acad. Sci. 527:87-102(1988).

[3]

RN SEQUENCE FROM N.A.

RP MEDLINE=8604065; PubMed=3899557;

RX Tsukada T., Horovitch S.J., Montminy M.R., Mandel G., Goodman R.H.;

RA "Structure of the human vasoactive intestinal polypeptide gene.;"

RL DNA 4:293-300(1985).

[4]

RN SEQUENCE FROM N.A.

RP MEDLINE=87092456; PubMed=3025882;

RX Linder S., Barkhem T., Norberg A., Persson H., Schalling M.;

RA Hoekfelt T., Magnusson G.;

RT "Structure and expression of the gene encoding the vasoactive

RT intestinal peptide precursor.;"

RL Proc. Natl. Acad. Sci. U.S.A. 84:605-609(1987).

[5]

RN SEQUENCE FROM N.A.

RP MEDLINE=86016352; PubMed=2995945;

RX Delamarter J.P., Buell G.N., Kawashima E., Polak J.M., Bloom S.R.;

RA "Vasoactive intestinal peptide: expression of the prohormone in

RT bacterial cells.;"

RL Peptides 6:95-102(1985).

[6]

RN SEQUENCE FROM N.A.

RP TISSUE=Prostate;

RC MEDLINE=22388257; PubMed=12477932;

RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.;

RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.;

RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.;

RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.;

RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.;

RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.;

RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.;

RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullaly S.J.;

RA Bosak S.A., McEwan P.J., McKernan K.J., Garcia A.M., Gay L.J., Hulyk S.W.;

RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.;

RA Richards S., Worley K.C., Hale S., Garcia A.M., Rodriguez S., Sanchez A.;

RA Fahney J., Helton E., Ketterman M., Madan A., Rodrigues S., Bouffard G.G.;

RA Whiting M., Madan A., Young A.C., Shcherchenko Y., Dickson M.C.;

RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.;

RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.;

RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smalilus D.E.;

RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;

RT "Generation and initial analysis of more than 15,000 full-length

RT human and mouse cDNA sequences.;"

RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).

[7]

RN SEQUENCE OF 8-170 FROM N.A.

RP MEDLINE=86313155; PubMed=3748844;

RX Gozes I., Bodener M., Shani Y., Fridkin M.;

RA "Structure and expression of the vasoactive intestinal peptide (VIP)

RT gene in a human tumor.;"

RL Peptides 7:1-6(1986).

[8]

RN SEQUENCE OF 50-170 FROM N.A.

RP TISSUE=Pancratic carcinoma;

RC MEDLINE=84066682; PubMed=6139527;

RX Bloom S.R., Delamarter J.F., Kawashima E., Christofides N.D.;

RA Buell G., Polak J.M.;

RT "Diarrhoea in vipoma patients associated with cosecretion of a second

RT active peptide (peptide histidine isoleucine) explained by single

RT coding gene.;"

RL Lancet 2:1163-1165(1983).

[9]

RN SEQUENCE OF 78-155 FROM N.A.

RP MEDLINE=87140054; PubMed=2434617;

RX Gozes I., Giladi E., Shani Y.;

RA "Vasoactive intestinal peptide gene: Putative mechanism of information

RT storage at the RNA level.;"

RL J. Neurochem. 47:1136-1141(1987).

[10]

RN SEQUENCE OF 81-122.

RP MEDLINE=88007645; PubMed=3654650;

RX Ylangou Y., di Marzo V., Spokes R.A., Panico M., Morris H.R.;

RA Bloom S.R.;

RT "Isolation, characterization, and pharmacological actions of peptide

RT histidine valine 42, a novel prepro-vasoactive intestinal peptide-

RT derived peptide.;"

RL J. Biol. Chem. 262:14010-14013(1987).

[11]

RN SEQUENCE OF 127-152.

RP TISSUE=Pheochromocytoma;

RC MEDLINE=92287083; PubMed=1318039;

RX Kitamura K., Kangawa K., Kawamoto M., Ichiki Y., Matsuo H., Eto T.;

RA "Isolation and characterization of peptides which act on rat

RT platelets, from a pheochromocytoma.;"

RL Biochem. Biophys. Res. Commun. 185:134-141(1992).

[12]

RN STRUCTURE BY NMR OF VIP.

RP MEDLINE=91322343; PubMed=1863695;

RA Theriault Y., Boulanger Y., St Pierre S.;

RT "Structural determination of the vasoactive intestinal peptide by

RT two-dimensional H-NMR spectroscopy.;"

RL Biopolymers 31:459-464(1991).

CC -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,

CC stimulates myocardial contractility, increases glycolysis and

CC relaxes the smooth muscle of trachea, stomach and gall bladder.

CC -!- FUNCTION: PHM and PHV also cause vasodilation.

CC -!- SUBCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the glucagon family.

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CC -----

DR EMBL; L00157; AAA61289.1; -

DR EMBL; L00154; AAA61289.1; JOINED.

DR EMBL; L00155; AAA61289.1; JOINED.

DR EMBL; L00156; AAA61289.1; JOINED.

DR EMBL; M1553; AAA61284.1; -

DR EMBL; M1549; AAA61284.1; JOINED.

RC STRAIN-Sprague-Dawley; TISSUE=Brain;
RX MEDLINE=91097560; PubMed=2268329;
RA Ogi K., Kimura C., Onda H., Arimura A., Fujino M.;
RT "Molecular cloning and characterization of cDNA for the precursor of
RT rat pituitary adenylate cyclase activating polypeptide (PACAP).";
RL Biochem. Biophys. Res. Commun. 173:1271-1279(1990).
[2]
RP SEQUENCE FROM N.A.
RC STRAIN=Wistar; TISSUE=Testis;
RX MEDLINE=95136947; PubMed=7835287;
RA Hurley J.D., Gardiner J.V., Jones P.M., Bloom S.R.;
RT "Cloning and molecular characterization of complementary
RT deoxyribonucleic acid corresponding to a novel form of pituitary
RT adenylate cyclase-activating polypeptide messenger ribonucleic acid
RT in the rat testis.";
RL Endocrinology 136:550-557(1995).
[3]
RP SEQUENCE OF 131-168.
RX MEDLINE=90026436; PubMed=2801320;
RA Miyata A., Arimura A., Dahl R.R., Minamino N., Uehara A., Jiang A.,
RA Culler M.D., Coy D.H.;
RT "Isolation of a novel 38 residue hypothalamic polypeptide which
RT stimulates adenylate cyclase in pituitary cells.";
RL Biochem. Biophys. Res. Commun. 164:567-574(1989).
CC -|- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC -|- SUBCELLULAR LOCATION: Secreted.
CC -|- SIMILARITY: Belongs to the glucagon family.
CC -----
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CC -----
DR EMBL; M63006; AAA41791.1; -;
DR EMBL; X80290; CAA56564.1; -;
DR PIR; A37786; A37786.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 1.
DR Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW Amidation.
FT SIGNAL 1 24 POTENTIAL.
FT PROPEP 25 78
FT PEPTIDE 81 128
FT PEPTIDE 131 157
FT PEPTIDE 131 168
FT MOD_RES 157 157
FT MOD_RES 168 168
FT CONFLICT 7 7
FT CONFLICT 26 26
FT CONFLICT 175 AA; 0398946896602B04 CRC64;
SQ SEQUENCE 175 AA; 19557 MW; 0398946896602B04 CRC64;
Query Match 38.9%; Score 77; DB 1; Length 170;
Best Local Similarity 40.0%; Pred. No. 0.003;
Matches 12; Conservative 10; Mismatches 8; Indels 0; Gaps 0;
QY 1 HVDAIFTSYRKVLQAQLSARKLLQILNRQ 30
DB 81 HADGVFTSDFSKLLQLSARKVLSMGKR 110
RESULT 15
PACA RAT
ID PACA RAT STANDARD; PRT; 175 AA.
AC P13589;
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-MAR-1992 (Rel. 21, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN ADCVAP1.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN RN
RP SEQUENCE FROM N.A.

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:44:17 ; Search time 35.5 Seconds
(without alignments)
355.513 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQEQGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1017041 seqs, 315518202 residues

Total number of hits satisfying chosen parameters: 1017041

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

SPREMBL 25:*

- 1: sp_archaea:*
- 2: sp_bacteria:*
- 3: sp_fungi:*
- 4: sp_human:*
- 5: sp_invertebrate:*
- 6: sp_mammal:*
- 7: sp_mhc:*
- 8: sp_organelle:*
- 9: sp_phase:*
- 10: sp_plant:*
- 11: sp_rodent:*
- 12: sp_virus:*
- 13: sp_vertebrate:*
- 14: sp_unclassified:*
- 15: sp_virus:*
- 16: sp_bacteriap:*
- 17: sp_archaeap:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	154	77.8	138	11 P97567	P97567 rattus norv
2	120	60.6	59	6 Q866F9	Q866F9 bos mutus g
3	113	57.1	28	6 Q9XS89	Q9XS89 equus cabal
4	92	46.5	26	6 P79406	P79406 sus scrofa
5	84	42.4	41	6 Q9TU30	Q9TU30 bos taurus
6	81	40.9	172	13 Q9DE29	Q9DE29 brachydanio
7	80.5	40.7	170	6 Q8MI77	Q8MI77 bos taurus
8	80	40.4	202	13 Q7ZYG8	Q7ZYG8 xenopus lae
9	78	39.4	170	11 Q8BJT8	Q8BJT8 mus musculus
10	78	39.4	173	13 Q98SP5	Q98SP5 oncorhynch
11	76.5	38.6	153	11 Q7TSR4	Q7TSR4 arvicant
12	76.5	38.6	171	11 Q9DZ27	Q9DZ27 mus musculus
13	75	37.9	89	13 Q98SP6	Q98SP6 anas platyr
14	73	36.9	175	13 Q90XZ4	Q90XZ4 ictalurus p
15	71	35.9	138	13 Q98SP4	Q98SP4 oncorhynch
16	70	35.4	171	13 Q9PUF8	Q9PUF8 xenopus lae

17	67	33.8	175	13	Q98TU3	Q98tu3 brachydanio
18	65	32.8	28	13	Q9PRN8	Q9prn8 carassius a
19	65	32.8	38	5	Q8IU39	Q8iu39 dugesia jap
20	65	32.8	38	5	Q8IU38	Q8iu38 hydra magni
21	65	32.8	38	5	Q8IU37	Q8iu37 sepioteuthi
22	65	32.8	38	5	Q8IU36	Q8iu36 periplaneta
23	65	32.8	38	13	Q8AYP5	Q8ayp5 trachurus j
24	65	32.8	38	13	Q8AYP4	Q8ayp4 acipenser s
25	64	32.3	427	10	Q94CE6	Q94ce6 arabidopsis
26	64	32.3	432	10	Q9MWX3	Q9mw3 arabidopsis
27	64	32.3	758	10	Q9C838	Q9c838 arabidopsis
28	63.5	32.1	1217	4	Q9ULL5	Q9ull5 homo sapien
29	62.5	31.6	178	13	Q91971	Q91971 oncorhynch
30	62.5	31.6	178	13	Q91189	Q91189 oncorhynch
31	62.5	31.6	333	11	Q8R3A6	Q8r3a6 mus musculu
32	62	31.3	28	13	Q9PRI9	Q9pri9 amia calva
33	59.5	30.1	525	3	Q94142	Q94142 gibberella
34	59	29.8	620	5	Q9UIU0	Q9uiu0 caenorhabdi
35	58	29.3	412	16	Q31518	Q31518 bacillus su
36	58	29.3	509	4	Q8N955	Q8n955 homo sapien
37	57	28.8	81	15	Q908H8	Q908h8 human immun
38	57	28.8	81	15	Q908M3	Q908m3 human immun
39	57	28.8	82	15	Q90MJ1	Q90mj1 human immun
40	57	28.8	300	10	Q9SKT0	Q9skt0 arabidopsis
41	56.5	28.5	1016	17	Q9ZXG0	Q9zxg0 pyrobaculum
42	56	28.3	81	15	Q98ZY3	Q98zy3 human immun
43	56	28.3	81	15	Q98ZY8	Q98zy8 human immun
44	56	28.3	81	15	Q98ZY2	Q98zy2 human immun
45	56	28.3	81	15	Q98ZY4	Q98zy4 human immun

ALIGNMENTS

RESULT 1

P97567
ID P97567 PRELIMINARY; PRT; 138 AA.
AC P97567;
DT 01-MAY-1997 (TREMELrel. 03, Created)
DT 01-MAY-1997 (TREMELrel. 03, Last sequence update)
DT 01-JUN-2003 (TREMELrel. 24, Last annotation update)
DE Pre-progrowth hormone releasing factor.
GN GHRH.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=Sprague-Dawley; TISSUE=Placenta;
RX MEDLINE=97188624; PubMed=9037209;
RA Perez-Riba M, Gonzalez-Crespo S., Boronat A.;
RT "Differential splicing of the growth hormone-releasing hormone gene in
rat placenta generates a novel pre-proGHRH mRNA that encodes a
different C-terminal flanking peptide.";
RL FEBS Lett. 402:273-276(1997).
DR EMBL; U41183; AAC53041.1;
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR00532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
SQ SEQUENCE 138 AA; 16226 MW; E9FD1336E48F4350 CRC64;

Query Match 77.8%; Score 154; DB 11; Length 138;
Best Local Similarity 76.3%; Pred. No. 1.le-12;
Matches 29; Conservative 5; Mismatches 4; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQEQ 38
Db 31 HADAIFTSSYRRLIGQLYARKLLHEIMNRQGGERNQEQ 68

RESULT 2
Q866F9 PRELIMINARY; PRT; 59 AA.
ID Q866F9
AC Q866F9;
DT 01-JUN-2003 (TrEMBLrel. 24, Created)
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Growth hormone releasing hormone (Fragment).
OS Bos mutus grunniens (Yak).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidea;
OC Bovidae; Bovinae; Bos.
NCBI_TaxID=30521;
[1]
RN SEQUENCE FROM N.A.
TISUE=Blood;
RC Ou J.T., Zhong J.C., Chen Z.H., Wu H., Rao K.Q.;
RA "T-A cloning and sequencing analysis on growth hormone releasing
RT hormone gene of Yak.";
RL Submitted (DEC-2002) to the EMBL/GenBank/DDBJ databases.
DR EMBL; AY208909; AAO26310.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
DR NON TER 59
SQ SEQUENCE 59 AA; 6705 MW; D5CA5663B74135A5 CRC64;
Query Match 60.6%; Score 120; DB 6; Length 59;
Best Local Similarity 82.8%; Pred.No.1.5e+08;
Matches 24; Conservative 3; Mismatches 2; Indels 0; Gaps 0;
QY 1 HVDAITNSYRKVLQAQLSARKLIQDILNR 29 : : : : : : : : : : : : : : : : : : : 31 YADAITNSYRKVLGQLSARKLIQDIMSR 59
Db
RESULT 3
Q9XS89 PRELIMINARY; PRT; 28 AA.
ID Q9XS89
AC Q9XS89;
DT 01-NOV-1999 (TrEMBLrel. 12, Created)
DT 01-NOV-1999 (TrEMBLrel. 12, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing factor (Fragment).
GK GHRI.
OS Equus caballus (Horse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Perissodactyla; Equidae; Equus.
NCBI_TaxID=97796;
[1]
RN SEQUENCE FROM N.A.
RP MEDLINE=99160468; PubMed=10051323;
KX Caetano A.R., Pomp D., Murray J.D., Bowling A.T.:
RA "Comparative mapping of 18 equine type I genes assigned by somatic
RT cell hybrid analysis."
RL Mamm. Genome 10:271-276(1999).
DR EMBL; AF097587; AAD25990.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
FT NON TER 1
FT NON TER 28
SQ SEQUENCE 28 AA; 3223 MW; D98BD32A3C8FC531 CRC64;
Query Match 57.1%; Score 113; DB 6; Length 28;
Best Local Similarity 81.5%; Pred.No.5.7e+08;

Matches 17; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLQAQLSAR 20
: |||||
Db 21 YADAIFTSYRKVLGQLSAR 40

RESULT 6

Q9DE29 ID Q9DE29 PRELIMINARY; PRT; 172 AA.

AC Q9DE29; AC Q9DE29; DT 01-MAR-2001 (TREMBLrel. 16, Created)
DT 01-MAR-2001 (TREMBLrel. 16, Last sequence update)
DT 01-JUN-2003 (TREMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-activating polypeptide.
GN ADCYAP1.

OS Brachydanio rerio (Zebrafish) (Danio rerio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Danio.
OX NCBI_TaxID=7955;
RN [1]

RP SEQUENCE FROM N.A.

RA Fradinger E.A., Sherwood N.M.;
RT "Characterization of the gene encoding both growth hormone-releasing hormone (GRF) and pituitary adenylate cyclase-activating polypeptide (PACAP) in the zebrafish.";
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.

DR EMBL; AF217251; AAG36782.1; -.

DR ZFIN; ZDB-GENE-020809-4; adcyap1.

DR GO; GO:0005576; C:extracellular; IEA.

DR GO; GO:0005179; F:hormone activity; IEA.

DR InterPro; IPR000532; Glucagon.

DR Pfam; PF00123; hormone2; 2.

DR PRINTS; PR00275; GLUCAGON.

DR SMART; SM00070; GLUCA; 2.

DR PROSITE; PS00260; GLUCAGON; 2.

FT CHAIN 81 125 GROWTH HORMONE-RELEASING HORMONE.

FT CHAIN 128 165 PITUITARY ADENYLATE CYCLASE-ACTIVATING POLYPEPTIDE.

SQ SEQUENCE 172 AA; 19558 MW; 458117F0042E36DD CRC64;

Query Match 40.9%; Score 81; DB 13; Length 172;
Best Local Similarity 46.9%; Pred. No. 0.0079;
Matches 15; Conservative 6; Mismatches 11; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLQAQLSAR 32
: |||||
Db 81 HADGMFNKAYRKALGQLSARKYLHLMKRVG 112

RESULT 7

Q8MI77 ID Q8MI77 PRELIMINARY; PRT; 170 AA.

AC Q8MI77; AC Q8MI77; DT 01-OCT-2002 (TREMBLrel. 22, Created)
DT 01-OCT-2002 (TREMBLrel. 22, Last sequence update)
DT 01-JUN-2003 (TREMBLrel. 24, Last annotation update)
DE Vasoactive intestinal polypeptide precursor.
OS Bos taurus (Bovine).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;
OC Bovidae; Bovinae; Bos.
OX NCBI_TaxID=9913;
RN [1]

RP SEQUENCE FROM N.A.

RX MEDLINE=22092342; PubMed=12097482;

RA Hamelink C., Lee H.-W., Chen Y., Grimaldi M., Biden L.E.;

RT "Coincident elevation of cAMP and calcium influx by PACAP-27

RT synergistically regulates vasoactive intestinal polypeptide gene

RT transcription through a novel PKA-independent signaling pathway.";

RL J. Neurosci. 22:5310-5320(2002).

DR EMBL; AF503910; AAM28152.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
KW Signal.
FT SIGNAL 1 22 POTENTIAL.
FT CHAIN 81 107 PHI.
FT CHAIN 125 152 VIP.
SQ SEQUENCE 170 AA; 19164 MW; 9C6A6049AF7BFF81 CRC64;

Query Match 40.7%; Score 80.5; DB 6; Length 170;

Best Local Similarity 37.5%; Pred. No. 0.0091;

Matches 15; Conservative 11; Mismatches 13; Indels 1; Gaps 1;

QY 1 HVDAIFTSYRKVLQAQLSARKLQDIL-NRQGGERNQEQ 39
: |||||

Db 81 HADGVFTSDYSRLGQLSARKYLSIGKRVNSISEDQG 120

RESULT 8

Q7ZYG8 ID Q7ZYG8 PRELIMINARY; PRT; 202 AA.

AC Q7ZYG8; AC Q7ZYG8; DT 01-JUN-2003 (TREMBLrel. 24, Created)

DT 01-JUN-2003 (TREMBLrel. 24, Last sequence update)

DT 01-OCT-2003 (TREMBLrel. 25, Last annotation update)

DE Hypothetical protein.

OS Xenopus laevis (African clawed frog).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;

OC Xenopodinae; Xenopus.

OX NCBI_TaxID=8355;

RN [1]

RP SEQUENCE FROM N.A.

RC TISSUE=Embryo;

RA Klein S., Strausberg R.;

RL Submitted (JAN-2003) to the EMBL/GenBank/DBJ databases.

DR EMBL; BC043792; AAH43792.1; -.

DR GO; GO:0005576; C:extracellular; IEA.

DR GO; GO:0005179; F:hormone activity; IEA.

DR InterPro; IPR000532; Glucagon.

DR Pfam; PF00123; hormone2; 2.

DR PRINTS; PR00275; GLUCAGON.

DR SMART; SM00070; GLUCA; 2.

DR PROSITE; PS00260; GLUCAGON; 1.

KW Hypothetical protein.

SQ SEQUENCE 202 AA; 22956 MW; C3899324E96651EF CRC64;

Query Match 40.4%; Score 80; DB 13; Length 202;

Best Local Similarity 43.3%; Pred. No. 0.013;

Matches 13; Conservative 9; Mismatches 8; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLQAQLSARKLQDILNRQ 30
: |||||

Db 87 HADGLFTSGYKLGQLSARKYLSIGKR 116

RESULT 9

Q8BJT8 ID Q8BJT8 PRELIMINARY; PRT; 170 AA.

AC Q8BJT8; AC Q8BJT8; DT 01-MAR-2003 (TREMBLrel. 23, Created)

DT 01-MAR-2003 (TREMBLrel. 23, Last sequence update)

DT 01-OCT-2003 (TREMBLrel. 25, Last annotation update)

DE Pituitary adenylate cyclase activating polypeptide precursor.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OX NCBI_TaxID=10090;

```

RN RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=Hypothalamus;
RX MEDLINE=22354683; PubMed=12466851;
RA The FANTOM Consortium.
RA "Analysis of the mouse transcriptome based on functional annotation of
RT 60,770 full-length cDNAs."
RL Nature 420:563-573 (2002).
DR EMBL; AK079530; BAC37673.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 1.
SQ SEQUENCE 170 AA; 18764 MW; C6E8C2C2C8860852 CRC64;

Query Match 39.4%; Score 78; DB 11; Length 170;
Best Local Similarity 58.6%; Pred. No. 0.02;
Matches 17; Conservative 3; Mismatches 9; Indels 0; Gaps 0;

QY 5 IFTNSYRKVLQALSARKLLQDILNRQGE 33
DB 86 ILNEAYRKVLQALSARKLLQDILNRQGE 114

RESULT 10
Q98SP5 PRELIMINARY; PRT; 173 AA.
AC Q98SP5;
DT 01-JUN-2001 (TrEMBLrel. 17, Created)
DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE activating polypeptide.
OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OC NCBI_TaxID=8022;
[1]
SEQUENCE FROM N.A.
RA Krueckl S.L., Sherwood N.M.;
RA "Temporal expression of grf/pacap during rainbow trout development.";
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF343976; AAK28557.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
SQ SEQUENCE 173 AA; 19783 MW; 21D1A06A9C47F780 CRC64;

Query Match 39.4%; Score 78; DB 13; Length 173;
Best Local Similarity 46.7%; Pred. No. 0.02;
Matches 14; Conservative 6; Mismatches 10; Indels 0; Gaps 0;

QY 1 HYDAIFTNSYRKVLQALSARKLLQDILNRQ 30
DB 82 HADGWFNKAYRKALQALSARKYLHSLMAKR 111

RESULT 11
Q7TSR4 PRELIMINARY; PRT; 153 AA.
AC Q7TSR4;
DT 01-OCT-2003 (TrEMBLrel. 25, Created)
DT 01-OCT-2003 (TrEMBLrel. 25, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
SQ SEQUENCE 171 AA; 19135 MW; 134A434DB6DF1254 CRC64;

DE Vasoactive intestinal polypeptide (Fragment).
OS Arvicanthus ansozei.
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae;
OC Arvicanthis.
OX NCBI_TaxID=204747;
RN [1]
SEQUENCE FROM N.A.
RA Dardente H., Menet J.S., Tournier B.B., Challet E., Pevet P.,
RA Masson-Pevet M.;
RT "Neuropeptide expression in the suprachiasmatic nuclei of a diurnal
RT rodent: Arvicanthus ansozei.";
RL Submitted (JAN-2003) to the EMBL/GenBank/DBJ databases.
DR EMBL; AY225375; AAP15167.1; -.
DR NON_TER 1
SQ SEQUENCE 153 AA; 17171 MW; 9C15095D6E147A15 CRC64;

Query Match 38.6%; Score 76.5; DB 11; Length 153;
Best Local Similarity 40.5%; Pred. No. 0.028;
Matches 15; Conservative 10; Mismatches 9; Indels 3; Gaps 1;

QY 1 HYDAIFTNSYRKVLQALSARKLLQDILNRQGSERNOE 37
DB 108 HSDAVFTDNYRLRKQMAVKYLNLSILN---GARSSE 141

RESULT 12
Q9DZ27 PRELIMINARY; PRT; 171 AA.
AC Q9DZ27;
DT 01-JUN-2001 (TrEMBLrel. 17, Created)
DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Vasoactive intestinal polypeptide.
GN VIP.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OC NCBI_TaxID=10090;
[1]
SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=Cecum;
RX MEDLINE=21085660; PubMed=11217851;
RA Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA Arakawa T., Hata A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA Aizawa K., Izawa M., Nishi K., Kiyosawa H., Kondo S., Yamanka I.,
RA Saito T., Okazaki Y., Gojobori T., Bono H., Kasukawa T., Saito R.,
RA Kadota K., Matsuda H.A., Ashburner M., Batalov S., Kasaiwa H.,
RA Fleischmann W., Gaasterland T., Gissi C., King B., Kochiwa H.,
RA Kuehl P., Lewis S., Matsuo Y., Nikaido I., Pesole G., Quackenbush J.,
RA Schriml L.M., Staabli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA Gustincich S., Hill D., Hofmann M., Hume D.A., Kamiya M., Lee N.H.,
RA Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mommaerts P.,
RA Nordone P., Ring B., Ringwald M., Rodriguez I., Sakamoto N.,
RA Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA Suzuki H., Toyooka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawai H., Kohtsuki S.,
RA Hayashizaki Y.;
RT "Functional annotation of a full-length mouse cDNA collection.";
RL Nature 409:685-690 (2001).
DR EMBL; AK018599; BAB31301.1; -.
DR MGD; MGI:98933; Vip.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
SQ SEQUENCE 171 AA; 19135 MW; 134A434DB6DF1254 CRC64;
```


GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:41:06 ; Search time 50.5 Seconds
(without alignments)
223.800 Million cell updates/sec

Title: US-10-021-403A-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQGERNQENGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A Geneseq 29Jan04: *
1: geneseqp1980s: *
2: geneseqp1990s: *
3: geneseqp2000s: *
4: geneseqp2001s: *
5: geneseqp2002s: *
6: geneseqp2003as: *
7: geneseqp2003bs: *
8: geneseqp2004s: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match %	Length	DB ID	Description
1	188	94.5	40	2	AAR24169 Growth ho
2	188	94.5	40	4	AAB69172 Porcine G
3	188	94.5	40	5	ABB78057 Amino aci
4	188	94.5	40	6	AAE35251 Porcine g
5	188	94.5	40	6	AAO30856 Porcine g
6	188	94.5	40	6	AAO29866 Porcine g
7	188	94.5	40	7	ABR84643 Porcine g
8	188	94.5	44	1	AAP50141 Sequence
9	188	94.5	44	1	AAP71496 Growth ho
10	188	94.5	44	2	AAR24174 Human gro
11	188	94.5	44	2	AAW29416 Growth ho
12	188	94.5	44	4	AAB390939 Growth ho
13	188	94.5	75	4	AAB36979 Porcine g
14	188	94.5	75	5	AAU98073 Human/pig
15	188	94.5	76	2	AAR15447 Ser 9 for
16	188	94.5	106	2	AAR15449 Ser 9 pGR
17	185	93.0	44	1	AAP50142 Sequence
18	185	93.0	44	1	AAP71497 Growth ho
19	185	93.0	44	2	AAR24177 Caprine g
20	185	93.0	44	2	AAR27773 Mature BG
21	185	93.0	44	2	AAR24361 Sequence
22	185	93.0	44	2	AAW29417 Growth ho
23	185	93.0	44	2	AAW16378 Synthetic
24	185	93.0	44	4	AAB90938 Growth ho
25	185	93.0	76	2	AAR15446 Asn 9 for

26	185	93.0	106	2	AAR15448	Aar15448 Asn 9 pGR
27	185	93.0	106	2	AAR27774	Aar27774 Precursor
28	184	92.5	44	1	AAP50143	Aap50143 Sequence
29	184	92.5	44	1	AAE71498	Aap71498 Growth ho
30	184	92.5	44	2	AAR24178	Aar24178 Ovine gro
31	184	92.5	44	2	AAW29418	Aaw29418 Growth ho
32	184	92.5	44	4	AAB90951	Aab90951 Growth ho
33	182	91.5	40	1	AAP50394	Aap50394 Growth ho
34	182	91.5	40	2	AAR31431	Aar31431 Growth ho
35	182	91.5	40	2	AAW44705	Aaw44705 Human GRF
36	182	91.5	40	4	AAB90947	Aab90947 Growth ho
37	182	91.5	40	4	AAB90948	Aab90948 Growth ho
38	182	91.5	40	6	AAE35250	Aae35250 Human mat
39	182	91.5	41	1	AAP50182	Aap50182 Growth ho
40	182	91.5	41	2	AAR69069	Aar69069 Growth Ho
41	182	91.5	41	2	AAR98952	Aar98952 Target pe
42	182	91.5	41	2	AAW44710	Aaw44710 Human GRF
43	182	91.5	42	2	AAR69081	Aar69081 Growth ho
44	182	91.5	42	2	AAW44711	Aaw44711 Human GRF
45	182	91.5	44	1	AAP40357	Aap40357 Sequence

ALIGNMENTS

RESULT 1
AAR24169
ID AAR24169 standard; peptide; 40 AA.
XX
AC AAR24169;
XX
DT 25-MAR-2003 (revised)
DT 17-NOV-1992 (first entry)
XX
DE Growth hormone releasing peptide.
XX
KW Growth; meat production; wool; carcass; feed; efficiency; milk.
XX
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Modified-site 1 /note= "N-isopropyl-Tyr"
FT Modified-site 12 /note= "N-isopropyl-Lys"
FT Modified-site 21 /note= "N-isopropyl-Lys"
FT Modified-site 21 /note= "N-isopropyl-Lys"
XX
PN US5112808-A.
XX
PD 12-MAY-1992.
XX
PF 10-MAY-1988; 88US-00187402.
XX
PR 11-MAY-1987; 87US-00048203.
XX
XX (AMCY) AMERICAN CYANAMID CO.
XX
XX Coy DH, Murphy WA;
XX
XX WPI; 1992-183024/22.
XX
XX New alkylated hormone-releasing peptide(s) - increasing growth rate of meat prodn. animals and treating growth hormone deficiencies.
XX
XX Disclosure; Page 4; 13pp; English.
XX
XX The peptide may be prepd. by standard solid phase synthesis.
XX
XX Administration of the peptide increases the release of growth hormone in mammals, including humans. It may be used to treat symptoms related to growth hormone deficiencies and may also be used to increase wool growth and the rate of growth; to improve carcass quality (i.e. more protein and less fat); and to improve feed efficiency in meat producing animals and

XX

```

SQ      Sequence 40 AA;
Query Match      94.5%; Score 188; DB 5; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY      1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
Db      ||:|||||
1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40

RESULT 4
AAE35251
ID      AAE35251 standard; protein; 40 AA.
XX
AC      AAE35251;
XX
DT      28-MAY-2003 (first entry)
XX
DE      Porcine growth hormone releasing hormone (GHRH) protein.
XX
KW      Growth hormone releasing hormone; GHRH; insulin-like froth factor-I;
KW      IGF-I; osteopathic; acquired immune deficiency syndrome; AIDS; cancer;
KW      post-surgery; growth hormone-related deficiency; transgene; bone loss;
KW      burn; post-fracture; genetic disease; gene therapy; porcine.
XX
OS      Sus scrofa.
XX
FN      WO200297099-A1.
XX
PD      05-DEC-2002.
XX
PF      30-MAY-2001; 2001WO-US017573.
XX
PR      29-MAY-2001; 2001US-0294316P.
XX
PA      (VALE-) VALENTIS INC.
PA      (BAYU ) BAYLOR COLLEGE MEDICINE.
XX
PI      Nordstrom JL, Draghia-Akli R;
XX
DR      WPI; 2003-140478/13.
XX
PT      Novel inducible growth hormone releasing hormone expression system in
PT      which expression of gene encoding GHRH that induces production of insulin
PT      -like froth factor-I in vivo, is not observed in absence of ligand.
XX
PS      Disclosure; Fig 20; 45pp; English.
XX
CC      The invention relates to an inducible growth hormone releasing hormone
CC      (GHRH) expression system in which expression of gene encoding GHRH that
CC      induces production of insulin-like froth factor-I (IGF-1) in vivo, is not
CC      observed in absence of ligand. The invention is useful for preparing a
CC      pharmaceutical composition for indications such as increasing weight,
CC      increasing lean body mass, decreasing fat mass, conversion to anabolism
CC      for a catabolic state associated with wasting, and increasing bone area,
CC      content and density. It is useful for regulated GHRH expression in vivo,
CC      for use in the indications, where the wasting is associated with cancer,
CC      acquired immune deficiency syndrome (AIDS), burns, or post-surgery. It is
CC      also useful for treating the growth hormone-related deficiencies
CC      associated with the growth hormone pathway, treating growth hormone-
CC      related deficiencies associated with genetic disease, and to prevent or
CC      treat bone loss, as in elderly, or post-fracture. It is also applied in
CC      vivo to effect expression of a transgene for gene therapy purposes. The
CC      present sequence is porcine GHRH protein used in the invention
XX
SQ      Sequence 40 AA;
Query Match      94.5%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY      1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
Db      ||:|||||
1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40

RESULT 5
AAO30856
ID      AAO30856 standard; protein; 40 AA.
XX
AC      AAO30856;
XX
DT      22-SEP-2003 (first entry)
XX
DE      Porcine growth hormone releasing hormone (GHRH) .
XX
KW      Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
KW      sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
KW      lymphoma; weight loss; lymphopoesis; appetite stimulant; anorectic;
KW      growth hormone releasing hormone; GHRH; porcine.
XX
OS      Sus scrofa.
XX
PN      WO2003049700-A2.
XX
PD      19-JUN-2003.
XX
PF      10-DEC-2002; 2002WO-US039509.
XX
PR      11-DEC-2001; 2001US-0339610P.
XX
PA      (ADVI-) ADVISYS INC.
PA      (BAYU ) BAYLOR COLLEGE MEDICINE.
XX
PI      Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
PI      Hahn K, Brenner MK;
XX
DR      WPI; 2003-558968/52.
XX
PT      Treating anemia, immune dysfunction, tumor, increasing total red blood
PT      cell mass, reversing wasting or abnormal weight loss in subject, by
PT      administering nucleic acid construct encoding growth-hormone-releasing-
PT      hormone.
XX
PS      Claim 258; Fig 1; 212pp; English.
XX
CC      The invention relates to compositions and methods for plasmid-mediated
CC      supplementation. The method is useful for treating anaemia, tumour (such
CC      as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune
CC      dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
CC      kidney failure, for preventing the development of metastatic tumour, for
CC      increasing total red blood cell mass, for reversing wasting, abnormal
CC      weight loss or suppression of lymphopoesis, in a subject, or for
CC      increasing weight gain in a chronically ill subject or, or for extending
CC      life expectancy for a chronically ill subject. The present sequence is
CC      porcine growth hormone releasing hormone (GHRH). This sequence is used to
CC      illustrate the method of the invention
XX
SQ      Sequence 40 AA;
Query Match      94.5%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY      1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40
Db      ||:|||||
1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNQEGA 40

RESULT 6
AAO29866
ID      AAO29866 standard; protein; 40 AA.
XX
AC      AAO29866;
XX

```

DT 27-AUG-2003 (first entry)
XX Porcine growth hormone releasing hormone (GHRH) protein.
DE
XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
KW bone healing; gene therapy; anorectic; osteopathic; porcine.
KW
XX Sus scrofa.
OS
XX WO2003038112-A2.
XX
XX 08-MAY-2003.
PD
XX
XX 25-OCT-2002; 2002WO-US034275.
PF
XX 26-OCT-2001; 2001US-0357808P.
XX
XX (BAYU) BAYLOR COLLEGE MEDICINE.
PA
XX Draghia-Akli R, Schwartz RJ;
PI WPI; 2003-493212/46.
XX
XX Decreasing body fat proportion, increasing lean body mass, bone density
XX or bone healing rate by delivering into cells of the subject a nucleic
XX acid expression construct that encodes a growth-hormone-releasing-hormone
XX (GHRH).
XX
XX Example 1; Fig 1; 165pp; English.
XX
XX The invention relates to a method for decreasing body fat proportion,
XX increasing lean body mass, bone density or bone healing rate in a subject
XX which involves delivering a nucleic acid expression construct that
XX encodes a growth hormone releasing hormone (GHRH) or its functional
XX biological equivalent into cells of the subject. The method is useful for
XX decreasing body fat proportion, for increasing lean body mass, bone
XX density or bone healing rate, or for altering lean body mass in a
XX subject. It is used in gene therapy. The present sequence is porcine GHRH
XX protein. This sequence is used to illustrate the method of the invention
XX
XX Sequence 40 AA;
SQ
Query Match 94.5%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
RESULT 7
ABR84643
ID ABR84643 standard; protein; 40 AA.
XX
XX ABR84643;
AC
XX 18-DEC-2003 (first entry)
DT Porcine growth hormone releasing hormone.
DE
XX Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
XX intergenerational growth promotion; pituitary gland; mutant;
KW hypopituitary dwarfism.
KW
XX Sus scrofa.
OS
XX WO2003066825-A2.
XX
XX 14-AUG-2003.
PD
XX 06-FEB-2003; 2003WO-US003640.
PF
XX

PR 07-FEB-2002; 2002US-0355566P.
XX
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Draghia-Akli R, Khan A;
XX WPI; 2003-731498/69.
XX
XX Changing the pituitary lineage in an offspring from a female subject
XX given a nucleic acid expression construct that encodes GHRH, useful in
XX treating growth deficiency disorders such as hypopituitary dwarfism.
XX
XX Example 1; Page 74; Opp; English.
XX
XX The present invention relates to a method of changing the pituitary
XX lineage in an offspring from a female subject. This comprises delivering
XX a nucleic acid expression construct into cells of the female subject, of
XX where the delivery is completed prior to or during a gestation period, of
XX the offspring and the nucleic acid expression construct comprises a
XX promoter, a nucleotide sequence and a 3' untranslated region, and
XX delivery is completed under conditions where expression of the nucleotide
XX sequence results in the changing of the pituitary lineage in the
XX offspring. The promoter in the method cited comprises a myogenic promoter
XX and the nucleic acid expression construct encodes a growth-hormone-
XX releasing-hormone (GHRH) or its functional biological equivalent. The
XX methods and compositions of the present invention are useful for altering
XX pituitary development and hormone secretion (prolactin) in the offspring
XX of a female subject given a nucleic acid expression construct that
XX encodes GHRH. They can specifically be useful in growth deficiency
XX disorders such as hypopituitary dwarfism, and where milk production and
XX egg production stimulation is needed particularly in animal breeding
XX purposes. The present sequence is porcine GHRH
XX
XX Sequence 40 AA;
SQ
Query Match 94.5%; Score 188; DB 7; Length 40;
Best Local Similarity 95.0%; Pred. No. 6.7e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
RESULT 8
AAP50141
ID AAP50141 standard; peptide; 44 AA.
XX
XX AAP50141;
AC
XX 25-MAR-2003 (revised)
DT 10-MAR-2003 (revised)
DT 30-NOV-1991 (first entry)
XX
XX Sequence of synthetic growth hormone release factor analogue.
XX DE
XX Growth promoter; milk production; lactation.
XX
XX Synthetic.
XX
XX Key Location/Qualifiers
FH Modified-site 1
FT /label= H-Tyr
FT Modified-site 44
FT /label= Leu-NH2
XX
XX EPI37689-A.
PN
XX 17-APR-1985.
XX
XX 28-AUG-1984; 84EP-00305845.
PF
XX 29-AUG-1983; 83US-00527292.
PR

XX SQ Sequence 44 AA;
Query Match 94.5%; Score 188; DB 2; Length 44;
Best Local Similarity 95.0%; Pred. No. 7.3e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
QY 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
DB 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
RESULT 11
AAW29416
ID AAW29416 standard; peptide; 44 AA.
XX AC AAW29416;
XX DT 27-AUG-2003 (revised)
DT 24-FEB-1998 (first entry)
XX DE Growth hormone releasing factor peptide segment 1-44.
XX KW Human growth hormone releasing factor; GRF; peptide synthesis;
KW pituitary dwarfism; renal insufficiency; Turner's syndrome;
KW short stature; milk production; animal growth.
XX OS Synthetic.
OS Mammalia.
XX PH Key Location/Qualifiers
FT Modified-site 44 /note= "C-terminal amide"
FT FT
XX PN WO9717367-A1.
XX PD 15-MAY-1997.
XX XX
XX PF 28-OCT-1996; 96WO-CA000712.
XX PR 03-NOV-1995; 95US-00552596.
XX PA (THER-) THERATECHNOLOGIES INC.
XX PI Ibea M, Brazeau P;
XX PS WPI; 1997-280981/25.
XX PT Production of growth hormone releasing factor peptide(s) - by coupling of
PT GRF peptide segments on a solid phase to produce high yields of the GRF
PT peptides.
XX PS Disclosure; Page 22; 32pp; English.
XX CC This sequence represents growth hormone releasing factor (GRF) peptide
CC segment 1-44-NH2. This peptide is synthesised in a new high yield process
CC for manufacturing (Gly or Ala)15 or 32GRF containing peptide. The method
CC comprises the steps of (a) synthesis of 14 to 15 residues of fully
CC protected GRF peptide acidic segments (S1)-OH and (S2)-OH from sarasin
CC resin, using sequential Fmoc chemistry; (b) synthesis of 12 to 15
CC residues of side chain protected GRF peptide amide segments (S3)-NH-,
CC (S4)-NH- and/or (S5)-NH- on solid phase using a trifluoroacetic acid
CC sensitive resin; and (c) one or two coupling steps of the synthesised GRF
CC peptide segments of steps (a) and (b) on a solid phase. The GRF peptides
CC can be used for stimulating growth hormone release e.g. for stimulating
CC growth in children with pituitary dwarfism, renal insufficiencies,
CC Turner's syndrome or short stature, and for stimulating growth of animals
CC and increasing milk production in cows. This segment coupling method can
CC provide the GRF peptides in high yields compared with step by step
CC coupling. (Updated on 27-AUG-2003 to correct OS field.)
XX SQ Sequence 44 AA;

Query Match 94.5%; Score 188; DB 2; Length 44;
Best Local Similarity 95.0%; Pred. No. 7.3e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
QY 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
DB 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
RESULT 12
AAB90939
ID AAB90939 standard; peptide; 44 AA.
XX AC AAB90939;
XX DT 22-JUN-2001 (first entry)
XX DE Growth hormone releasing factor (GRF) related peptide SEQ ID NO:113.
XX KW Protection; endogenous therapeutic peptide; peptidase; conjugation;
KW blood component; modification; succinimidy; maleimido group; amino;
KW hydroxyl; thiol; hormone; growth factor; neurotransmitter.
XX OS Homo sapiens.
OS Synthetic.
XX PN WC200069900-A2.
XX PD 23-NOV-2000.
XX PF 17-MAY-2000; 2000WO-US013576.
XX PR 17-MAY-1999; 99US-01344406P.
PR 10-SEP-1999; 99US-0153406P.
PR 15-OCT-1999; 99US-0159783P.
XX PA (CONJ-) CONJUCHEM INC.
XX PI Bridon DP, Ezrin AM, Milner PG, Holmes DL, Thibaudeau K;
XX WPI; 2001-112059/12.
XX PT Modifying and attaching therapeutic peptides to albumin prevents
PT peptidase degradation, useful for increasing length of in vivo activity.
XX PS Disclosure; Page 227; 733pp; English.
XX CC The present invention describes a modified therapeutic peptide (I)
CC comprising a therapeutically active amino acid region (III) and a
CC reactive group (II) (e.g. succinimidy and maleimido groups) attached to
CC a less therapeutically active amino acid region (IV), which covalently
CC bonds with amino/hydroxyl/thiol groups on blood components to form a
CC peptidase stabilised therapeutic peptide composed of 3-50 amino acids.
CC (I) are useful for modifying therapeutic peptides e.g. hormones, growth
CC factors and neurotransmitters, to protect them from peptidase activity in
CC vivo for the treatment of various disorders. Endogenous therapeutic
CC peptides are not suitable as drug candidates as they require frequent
CC administration due to rapid degradation by peptidases in the body.
CC Modifying and attaching therapeutic peptides to albumin prevents or
CC reduces the action of peptidases to increase length of activity (half
CC life) and specificity as bonding to large molecules decreases
CC intracellular uptake and interference with physiological processes.
CC AAB90829 to AAB92441 represent peptides which can be used in the
CC exemplification of the present invention
XX SQ Sequence 44 AA;
Query Match 94.5%; Score 188; DB 4; Length 44;
Best Local Similarity 95.0%; Pred. No. 7.3e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
QY 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40

Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSRQGGERNQEQGA 40

RESULT 13
AAB36979
ID AAB36979 standard; protein; 75 AA.
XX AAB36979;
XX AC
XX DT 28-FEB-2001 (first entry)
XX DE Porcine growth hormone-releasing hormone.
XX GHRH; growth hormone-releasing hormone; enzyme degradation.
XX KW Sus scrofa.
XX OS
XX PN EP1052286-A2.
XX PD 15-NOV-2000.
XX PF 12-APR-2000; 2000EP-00302790.
XX PR 12-APR-1999; 99US-0128830P.
XX PA (PFIZ) PFIZER PROD INC.
XX PI Morsey MA, Sheppard MG;
XX WPI; 2001-026585/04.
XX New polypeptide variants of growth hormone releasing hormone with
PT enhanced resistance to enzymatic degradation, useful for treating growth
PT hormone deficiency related disorders or to improve growth and
PT performance.
XX Example; Page 19-20; 67pp; English.
XX The present invention relates to growth hormone-releasing hormone (GHRH)
CC variants having enhanced resistance to enzymatic degradation. The variant
CC GHRH polypeptides can be administered to animals to treat growth hormone
CC deficiency related disorders, or to improve growth and/or performance.
CC The variants can be included in pharmaceutical compositions to promote
CC expression and elevation of growth hormone. The variants can be produced
CC recombinantly at much higher levels than prior art variants modified
CC using traditional chemical methods. They have enhanced resistance to
CC enzymatic degradation, therefore have increased length of activity
XX
SQ Sequence 75 AA;
Query Match 94.5%; Score 188; DB 4; Length 75;
Best Local Similarity 95.0%; Pred. No. 1.3e-16;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 YADAIFTNSYRKVLGQLSARKLLQDIMSRQGGERNQEQGA 40
Db 32 YADAIFTNSYRKVLGQLSARKLLQDIMSRQGGERNQEQGA 71

RESULT 14
AAU98073
ID AAU98073 standard; protein; 75 AA.
XX AAU98073;
XX AC
XX DT 15-AUG-2002 (first entry)
XX Human/pig growth hormone releasing hormone (GHRH) fusion protein.
XX Growth hormone releasing hormone; GHRH; livestock; animal;
KW growth hormone deficiency; enzymatic degradation; cat; dog; pig;
KW horse; chicken; human.
XX

OS Homo sapiens.
OS Sus scrofa.
OS Cytomegalovirus.
OS Synthetic.
OS Chimeric.
XX
FH Key
FT Peptide
FT 1. .31
FT /label= Signal peptide
FT /note= "Human GHRH"
FT 32. .75
FT Protein
FT /label= Mature porcine_GHRH
XX
PN EP1205551-A1.
XX
XX 15-MAY-2002.
XX
XX 09-NOV-2000; 2000EP-00309965.
XX
XX 09-NOV-2000; 2000EP-00309965.
XX (PFIZ) PFIZER PROD INC.
XX
XX Morsey MA, Sheppard MG;
XX WPI; 2002-437396/47.
XX N-PSDB; ABK98073.
XX Growth hormone releasing hormone variant containing additional amino acid
PT at the amino terminus is resistant to enzymatic cleavage and is useful to
PT treat animals for growth hormone deficiency or to improve growth and
PT performance.
XX Example 3; Page 19-20; 74pp; English.
XX
XX The present invention relates to a new growth hormone releasing hormone
CC (GHRH) variant comprising the addition of one amino acid to the amino
CC terminus of a 29 amino acid terminal fragment of GHRH in a
CC pharmaceutical formulation for delivery to a human or livestock. The DNA
CC sequences and polypeptides are used to treat an animal with a growth
CC hormone deficiency, or to improve the growth or performance of an animal,
CC particularly a cat, dog, cow, pig, horse or chicken. The GHRH variants
CC are more resistant to enzymatic degradation than natural GHRH. The
CC present amino acid sequence represents the human/pig growth hormone
CC releasing hormone (GHRH) fusion protein that was used in the methods of
CC the invention for synthesis of GHRH constructs
XX
SQ Sequence 75 AA;
Query Match 94.5%; Score 188; DB 5; Length 75;
Best Local Similarity 95.0%; Pred. No. 1.3e-16;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy 1 YADAIFTNSYRKVLGQLSARKLLQDIMSRQGGERNQEQGA 40
Db 32 YADAIFTNSYRKVLGQLSARKLLQDIMSRQGGERNQEQGA 71

RESULT 15
AAR15447
ID AAR15447 standard; protein; 76 AA.
XX
XX AAR15447;
XX AC
XX DT 25-MAR-2003 (revised)
XX 25-FEB-1992 (first entry)
XX
XX Ser 9 form of porcine growth hormone releasing factor.
XX pGRF; pig; somatotropin.
XX Synthetic.
XX

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PN	EP459747-A.
XX	04-DEC-1991.
XX	28-MAY-1991; 91RP-00304796.
XX	29-MAY-1990; 90US-00530150.
XX	(ELIL) LILLY & CO ELI.
XX	Chan G, Heiman ML, Hsiung HM;
PI	WPI; 1991-355985/49.
XX	P-PSDB; AAR15447.
XX	Precursor and mature polypeptide deoxyribonucleic acid forms - of porcine growth hormone releasing factor used to induce growth hormone release in animals.
PT	Claim 3; Page 17; 24pp; English.
XX	Mature pGRF with Ser at position 9 can be produced in transformed E.coli or synthesised directly. See AAQ15155-8. (Updated on 25-MAR-2003 to correct PA field.)
CC	Sequence 76 AA;
XX	Query Match 94.5%; Score 188; DB 2; Length 76;
SQ	Best Local Similarity 95.0%; Pred. No. 1.3e-16;
	Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
Qy	1 YANAIFNYSRKVLGQLSARKLLQDINMSROQGERNQEQA 40 : :
Dd	1 YADAIFTNYSRKVLGQLSARKLLQDINMSROQGERNQEQA 40 :

Search completed: July 12, 2004, 20:46:06
Job time : 52.5 secs

1	188	94.5	40	4	US-09-624-268B-14	Sequence 14, Appl
2	188	94.5	44	1	US-08-062-472B-31	Sequence 31, Appl
3	188	94.5	44	1	US-08-062-472B-31	Sequence 6, Appl
4	185	93.0	44	1	US-08-212-171D-12	Sequence 12, Appl
5	185	93.0	44	1	US-08-218-608-12	Sequence 29, Appl
6	185	93.0	44	1	US-08-062-472B-29	Sequence 30, Appl
7	185	93.0	44	1	US-08-062-472B-30	Sequence 3, Appl
8	185	93.0	44	4	US-09-122-171D-5	Sequence 5, Appl
9	184	92.5	44	1	US-08-062-472B-9	Sequence 9, Appl
10	184	92.5	44	4	US-09-122-171D-28	Sequence 28, Appl
11	182	91.5	40	1	US-09-122-171D-7	Sequence 7, Appl
12	182	91.5	40	1	US-08-410-353-2	Sequence 2, Appl
13	182	91.5	40	2	US-08-493-594-2	Sequence 2, Appl
14	182	91.5	40	4	US-09-122-171D-10	Sequence 2, Appl
15	182	91.5	41	1	US-08-095-162-7	Sequence 10, Appl
16	182	91.5	41	1	US-08-410-353-7	Sequence 7, Appl
17	182	91.5	41	1	US-08-470-220A-7	Sequence 7, Appl
18	182	91.5	41	3	US-08-967-374-7	Sequence 7, Appl
19	182	91.5	41	4	US-09-505-991-7	Sequence 7, Appl
20	182	91.5	41	5	PCR-US95-15800-23	Sequence 7, Appl
21	182	91.5	42	1	US-08-095-162-24	Sequence 7, Appl
22	182	91.5	42	1	US-08-410-353-8	Sequence 23, Appl
23	182	91.5	42	1	US-08-470-220A-24	Sequence 24, Appl
24	182	91.5	42	3	US-08-967-374-24	Sequence 24, Appl
25	182	91.5	42	4	US-09-505-991-24	Sequence 24, Appl
26	182	91.5	44	1	US-07-701-414A-1	Sequence 24, Appl
27	182	91.5	44	1	US-07-924-054-9	Sequence 9, Appl
						Sequence 16, Appl

us-10-021-403a-1.ra1

Mon Jul 19 13:55:14 2004

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;
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 31:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: Peptide
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; US-08-062-472B-31
;
; Query Match 94.5%; Score 188; DB 1; Length 44;
; Best Local Similarity 95.0%; Pred. No. 2.6e-19;
; Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
;
; QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
; DB 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOEQA 40
;
; RESULT 3
; US-09-122-171D-6
; Sequence 6, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; TITLE OF INVENTION: GHF Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: Patent In version 3.1
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Sus scrofa GHRH
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; US-09-122-171D-6
;
; Query Match 94.5%; Score 188; DB 4; Length 44;
; Best Local Similarity 95.0%; Pred. No. 2.6e-19;
; Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
;
; QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
; DB 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOEQA 40
;
; RESULT 4
; US-08-218-608-12
; Sequence 12, Application US/08218608
; Patent No. 5607859
;
; GENERAL INFORMATION:
; APPLICANT: BIEMANN, KLAUS
; APPLICANT: JUHASZ, PETER
; TITLE OF INVENTION: METHODS AND PRODUCTS FOR MASS
; SPECTROMETRIC MOLECULAR WEIGHT DETERMINATION OF POLYIONIC
; ANALYTES EMPLOYING POLYIONIC REAGENTS
; TITLE OF INVENTION: ANALYTES EMPLOYING POLYIONIC REAGENTS
; NUMBER OF SEQUENCES: 12
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: WOLF, GREENFIELD & SACKS, P.C.
; STREET: 600 ATLANTIC AVENUE
; CITY: BOSTON
; STATE: MA
; COUNTRY: USA
; ZIP: 02210
;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patent In Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/218,608
; FILING DATE: 28-MAR-1994
; CLASSIFICATION: 436
; ATTORNEY/AGENT INFORMATION:
; NAME: GATES, EDWARD R.
; REGISTRATION NUMBER: 31,616
; REFERENCE/DOCKET NUMBER: M0656/7013
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 617-720-3500
; TELEFAX: 617-720-2441
; INFORMATION FOR SEQ ID NO: 12:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; ORIGINAL SOURCE:
; ORGANISM: NONE (SYNTHETIC BOVINE GROWTH HORMONE
; ORGANISM: RELEASING FACTOR)
;
; US-08-218-608-12
;
; Query Match 93.0%; Score 185; DB 1; Length 44;
; Best Local Similarity 92.5%; Pred. No. 6.9e-19;
; Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;
;
; QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40
; DB 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOEQA 40
;
; RESULT 5
; US-08-062-472B-29
; Sequence 29, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: McKory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESSEE: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
;
; US-08-062-472B-29

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;
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 29:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-29

Query Match          93.0%; Score 185; DB 1; Length 44;
Best Local Similarity 92.5%; Pred. No. 6.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOENGA 40

RESULT 6
US-08-062-472B-30
; Sequence 30, Application US/08062472B
; Patent No. 5695954
; GENERAL INFORMATION:
; APPLICANT: Sherwood, Nancy G M
; APPLICANT: Parker, David B
; APPLICANT: Mcrory, John E
; APPLICANT: Lescheid, David W
; TITLE OF INVENTION: DNA ENCODING TWO FISH NEUROPEPTIDES
; NUMBER OF SEQUENCES: 49
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: KLARQUIST, SPARKMAN, CAMPBELL, LEIGH &
; ADDRESS: WHINSTON, LLP
; STREET: ONE WORLD TRADE CENTER, SUITE 1600, 121 S.W.
; CITY: PORTLAND
; STATE: OREGON
; COUNTRY: USA
; ZIP: 97204-2988
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: Patentin Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/062,472B
; FILING DATE: 14-MAY-1993
; CLASSIFICATION: 435
; ATTORNEY/AGENT INFORMATION:
; NAME: POLLEY, RICHARD J
; REGISTRATION NUMBER: 28107
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (503) 226-7391
; TELEFAX: (503) 228-9446
; INFORMATION FOR SEQ ID NO: 30:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 44 amino acids
; TYPE: amino acid
; STRANDEDNESS: single
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;
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-062-472B-30

Query Match          93.0%; Score 185; DB 1; Length 44;
Best Local Similarity 92.5%; Pred. No. 6.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOENGA 40

RESULT 7
US-09-122-171D-5
; Sequence 5, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Bos taurus GHRH
; US-09-122-171D-5

Query Match          93.0%; Score 185; DB 4; Length 44;
Best Local Similarity 92.5%; Pred. No. 6.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOENGA 40

RESULT 8
US-09-122-171D-9
; Sequence 9, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 9
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Capra hircus GHRH
; US-09-122-171D-9

Query Match          93.0%; Score 185; DB 4; Length 44;
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; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 7
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Ovis Aries GHRH
US-09-122-171D-7

Query Match          92.5%; Score 184; DB 4; Length 44;
Best Local Similarity 90.0%; Pred. No. 9,4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
   ||:|||||:|||||:|||||:|||||:|||||:|||||
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOEQGA 40
   ||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 11
US-08-410-353-2
; Sequence 2, Application US/08410353
; Patent No. 5700775
; GENERAL INFORMATION:
; APPLICANT: Gutniak, Mark K.
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Wagner, Fred W.
; APPLICANT: Recker, Robert R.
; TITLE OF INVENTION: Method and Treatment Composition for
; TITLE OF INVENTION: Decreasing Patient Time in Catabolic State After Traumatic
; TITLE OF INVENTION: Injury
; NUMBER OF SEQUENCES: 8
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Zarley, McKee, Thomte, Voorhees & Sease
; STREET: 801 Grand Ave. Suite 3200
; CITY: Des Moines
; STATE: Iowa
; COUNTRY: United States
; ZIP: 50309
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/410,353
; FILING DATE: 24-MAR-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nebel, Heidi Sease
; REGISTRATION NUMBER: 37,719
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 515-288-3667
; TELEFAX: 515-288-1338
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 40 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: not relevant
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: N-terminal
US-08-410-353-2

Query Match          91.5%; Score 182; DB 1; Length 40;
Best Local Similarity 92.5%; Pred. No. 1.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 7
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Ovis Aries GHRH
US-09-122-171D-7

Query Match          92.5%; Score 184; DB 1; Length 44;
Best Local Similarity 90.0%; Pred. No. 9,4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQOGERNOENGA 40
   ||:|||||:|||||:|||||:|||||:|||||:|||||
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMNRQOGERNOEQGA 40
   ||:|||||:|||||:|||||:|||||:|||||:|||||

RESULT 10
US-09-122-171D-7
; Sequence 7, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
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QY 1 YANAFTNSYRKVLGQLSARKLLQDIMSRRQGGERNQENGA 40
Db 1 YADAFTNSYRKVLGQLSARKLLQDIMSRRQGGESNQERGA 40

RESULT 12
US-08-493-594-2
; Sequence 2, Application US/08493594
; Patent No. 5846936
; GENERAL INFORMATION:
; APPLICANT: Felix, Arthur M
; APPLICANT: Heimer, Edgar P
; TITLE OF INVENTION: GROWTH HORMONE RELEASING FACTOR ANALOGS
; NUMBER OF SEQUENCES: 38
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Hoffmann-La Roche Inc.
; STREET: 340 Kingsland Street
; CITY: Nutley
; STATE: New Jersey
; COUNTRY: United States of America
; ZIP: 07110-1199
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION NUMBER: US/08/493,594
; FILING DATE:
; CLASSIFICATION: 514
; PRIOR APPLICATION NUMBER: US/08/274,656
; FILING DATE:
; APPLICATION NUMBER: US/08/154,579
; FILING DATE:
; APPLICATION NUMBER: US/07/993,489
; FILING DATE:
; APPLICATION NUMBER: US/07/682,835
; FILING DATE:
; ATTORNEY/AGENT INFORMATION:
; NAME: Kass, Alan P
; REGISTRATION NUMBER: 32142
; REFERENCE/DOCKET NUMBER: 8390
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: (201)235-4205
; TELEFAX: (201)235-3500
; INFORMATION FOR SEQ ID NO: 2:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 40 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; US-08-493-594-2

Query Match 91.5%; Score 182; DB 2; Length 40;
Best Local Similarity 92.5%; Pred. No. 1.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAFTNSYRKVLGQLSARKLLQDIMSRRQGGERNQENGA 40
Db 1 YADAFTNSYRKVLGQLSARKLLQDIMSRRQGGESNQERGA 40

RESULT 13
US-09-122-171D-10
; Sequence 10, Application US/09122171D
; Patent No. 6423693
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
```

```
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/09/122,171D
; CURRENT FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/062,608
; PRIOR FILING DATE: 1997-10-20
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: Homo sapiens GHRH
; US-09-122-171D-10

Query Match 91.5%; Score 182; DB 4; Length 40;
Best Local Similarity 92.5%; Pred. No. 1.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAFTNSYRKVLGQLSARKLLQDIMSRRQGGERNQENGA 40
Db 1 YADAFTNSYRKVLGQLSARKLLQDIMSRRQGGESNQERGA 40

RESULT 14
US-08-095-162-7
; Sequence 7, Application US/08095162
; Patent No. 5512459
; GENERAL INFORMATION:
; APPLICANT: Wagner, Fred W.
; APPLICANT: Stout, Jay
; APPLICANT: Henriksen, Dennis
; APPLICANT: Partridge, Bruce
; APPLICANT: Manning, Shane
; TITLE OF INVENTION: Enzymatic Method for Modification of
; TITLE OF INVENTION: Recombinant Polypeptides
; NUMBER OF SEQUENCES: 26
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Merchant & Gould
; STREET: 3100 No. 5512459west Center
; CITY: Minneapolis
; STATE: MN
; COUNTRY: USA
; ZIP: 55402
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.25
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/095,162
; FILING DATE: 20-JUL-1993
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nelson, Albin J.
; REGISTRATION NUMBER: 28,659
; REFERENCE/DOCKET NUMBER: 8648.32-US01
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 612-332-5300
; TELEFAX: 612-332-9081
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 41 amino acids
; TYPE: amino acid
; TOPOLOGY: linear
; MOLECULE TYPE: peptide
; IMMEDIATE SOURCE:
; CLONE: GRF (1-41) (Growth Hormone Releasing Factor)
; US-08-095-162-7

Query Match 91.5%; Score 182; DB 1; Length 41;
Best Local Similarity 92.5%; Pred. No. 1.7e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
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Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGGRNQENGA 40
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Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGESNQERGA 40

RESULT 15

US-08-410-353-7
; Sequence 7, Application US/08410353
; Patent No. 5700775
; GENERAL INFORMATION:
; APPLICANT: Gutniak, Mark K.
; APPLICANT: Coolidge, Thomas R.
; APPLICANT: Wagner, Fred W.
; APPLICANT: Recker, Robert R.
; TITLE OF INVENTION: Method and Treatment Composition for
; TITLE OF INVENTION: Decreasing Patient Time in Catabolic State After Traumatic
; TITLE OF INVENTION: Injury
; NUMBER OF SEQUENCES: 8
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Zarley, McKee, Thontse, Voorhees & Sease
; STREET: 801 Grand Ave. Suite 3200
; CITY: Des Moines
; STATE: Iowa
; COUNTRY: United States
; ZIP: 50309
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
; OPERATING SYSTEM: PC-DOS/MS-DOS
; SOFTWARE: PatentIn Release #1.0, Version #1.30
; CURRENT APPLICATION DATA:
; APPLICATION NUMBER: US/08/410,353
; FILING DATE: 24-MAR-1995
; CLASSIFICATION: 514
; ATTORNEY/AGENT INFORMATION:
; NAME: Nebel, Heidi Sease
; REGISTRATION NUMBER: 37,719
; TELECOMMUNICATION INFORMATION:
; TELEPHONE: 515-288-3667
; TELEFAX: 515-288-1338
; INFORMATION FOR SEQ ID NO: 7:
; SEQUENCE CHARACTERISTICS:
; LENGTH: 41 amino acids
; TYPE: amino acid
; STRANDEDNESS:
; TOPOLOGY: not relevant
; MOLECULE TYPE: protein
; HYPOTHETICAL: NO
; ANTI-SENSE: NO
; FRAGMENT TYPE: N-terminal
; US-08-410-353-7

Search completed: July 12, 2004, 20:54:54
Job time : 16 secs


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; APPLICANT: Baylor College of Medicine
; TITLE OF INVENTION: Modified Pituitary Gland Development in offspring from Expectant
; TITLE OF INVENTION: animals treated with GHRH
; FILE REFERENCE: 108228.00087 - AVSI-0019
; CURRENT APPLICATION NUMBER: US/10/359,919A
; CURRENT FILING DATE: 2003-02-06
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: Amino acid sequence for porcine growth hormone releasing hormone.
US-10-359-919A-10

Query Match          94.5%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||

RESULT 3
US-10-315-907A-10
; Sequence 10, Application US/10315907A
; Publication No. US20040057941A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: PLASMID MEDIATED SUPPLEMENTATION FOR TREATING CHRONICALLY ILL SUE
; FILE REFERENCE: 108328.00073 - AVSI-0007
; CURRENT APPLICATION NUMBER: US/10/315,907A
; CURRENT FILING DATE: 2002-12-10
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: Amino acid sequence for porcine growth hormone releasing hormone.
US-10-315-907A-10

Query Match          94.5%; Score 188; DB 12; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||

RESULT 4
US-10-262-141-14
; Sequence 14, Application US/10262141
; Publication No. US20030129172A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; APPLICANT: Draghia-Akli, Ruxandra
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857US1
; CURRENT APPLICATION NUMBER: US/10/262,141
; CURRENT FILING DATE: 2002-09-20
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 14
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is the artificial sequence for the (1-44)NH2
US-10-395-709-5

Query Match          94.5%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
```

```
; TYPE: PRT
; ORGANISM: PIG
US-10-262-141-14

Query Match          94.5%; Score 188; DB 14; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||

RESULT 5
US-10-262-377-14
; Sequence 14, Application US/10262377
; Publication No. US20030148948A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert
; APPLICANT: Draghia-Akli, Ruxandra
; TITLE OF INVENTION: Super-Active Porcine Growth Hormone Releasing Hormone Analog
; FILE REFERENCE: P01857US1
; CURRENT APPLICATION NUMBER: US/10/262,377
; CURRENT FILING DATE: 2000-07-24
; PRIOR APPLICATION NUMBER: US 60/145,624
; PRIOR FILING DATE: 1999-07-26
; PRIOR APPLICATION NUMBER: PCT/US00/20127
; PRIOR FILING DATE: 2000-07-24
; NUMBER OF SEQ ID NOS: 14
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 14
; LENGTH: 40
; TYPE: PRT
; ORGANISM: PIG
US-10-262-377-14

Query Match          94.5%; Score 188; DB 14; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||

RESULT 6
US-10-395-709-5
; Sequence 5, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE PO
; TITLE OF INVENTION: GLUTAMATE ("PLG") SYSTEM
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is the artificial sequence for the (1-44)NH2
US-10-395-709-5

Query Match          94.5%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGERNQENGA 40
||:|||||||||||||||||||||||||||||||||||||
```



```
RESULT 7
US-10-395-709-10
; Sequence 10, Application US/10395709
; Publication No. US20040014645A1
; GENERAL INFORMATION:
; APPLICANT: Advisys
; TITLE OF INVENTION: INCREASED DELIVERY OF A NUCLEIC ACID CONSTRUCT IN VIVO BY THE POI
; FILE OF INVENTION: GLUTAMATE ("PLG") SYSTEM
; FILE REFERENCE: 108328.00115 - AVSI-0021P1
; CURRENT APPLICATION NUMBER: US/10/395,709
; CURRENT FILING DATE: 2003-03-24
; NUMBER OF SEQ ID NOS: 25
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 10
; LENGTH: 40
; TYPE: PRT
; ORGANISM: artificial sequence
; FEATURE:
; OTHER INFORMATION: This is the amino acid sequence for porcine growth hormone releas
; OTHER INFORMATION: ing hormone.
US-10-395-709-10

Query Match          94.5%; Score 188; DB 15; Length 40;
Best Local Similarity 95.0%; Pred. No. 9.6e-20;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 8
US-10-124-759-6
; Sequence 6, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR FILING DATE: 1998-07-24
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Sus scrofa GHRH
US-10-124-759-6

Query Match          94.5%; Score 188; DB 14; Length 44;
Best Local Similarity 95.0%; Pred. No. 1.1e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 9
US-10-124-759-5
; Sequence 5, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
```

```
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR FILING DATE: 1998-07-24
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 5
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Bos taurus GHRH
US-10-124-759-5

Query Match          93.0%; Score 185; DB 14; Length 44;
Best Local Similarity 92.5%; Pred. No. 2.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 10
US-10-124-759-9
; Sequence 9, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR FILING DATE: 1998-07-24
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: PatentIn version 3.1
; SEQ ID NO 9
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Capra hircus GHRH
US-10-124-759-9

Query Match          93.0%; Score 185; DB 14; Length 44;
Best Local Similarity 92.5%; Pred. No. 2.9e-19;
Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTNSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 11
US-10-124-759-7
; Sequence 7, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
```

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; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR APPLICATION NUMBER: US/09/122,171
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: Patentin version 3.1
; SEQ ID NO 7
; TYPE: PRT
; ORGANISM: Ovis Aries GHRH
US-10-124-759-7

Query Match          92.5%; Score 184; DB 14; Length 44;
Best Local Similarity 90.0%; Pred. No. 4e-19;
Matches 36; Conservative 3; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOEQGA 40

RESULT 12
US-10-124-759-10
; Sequence 10, Application US/10124759
; Publication No. US20030055017A1
; GENERAL INFORMATION:
; APPLICANT: Schwartz, Robert J.
; APPLICANT: Draghia-Akli, Ruxandra
; APPLICANT: Li, Xuyang
; APPLICANT: Eastman, Eric
; TITLE OF INVENTION: GHRH Expression System and Methods of Use
; FILE REFERENCE: 236/006 GeneMedicine
; CURRENT APPLICATION NUMBER: US/10/124,759
; CURRENT FILING DATE: 2002-04-16
; PRIOR APPLICATION NUMBER: US/09/122,171
; PRIOR FILING DATE: 1998-07-24
; PRIOR APPLICATION NUMBER: 60/053,609
; PRIOR FILING DATE: 1997-07-24
; NUMBER OF SEQ ID NOS: 15
; SOFTWARE: Patentin version 3.1
; SEQ ID NO 10
; TYPE: PRT
; ORGANISM: Homo sapiens GHRH
US-10-124-759-10

Query Match          91.5%; Score 182; DB 14; Length 40;
Best Local Similarity 92.5%; Pred. No. 7e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40

RESULT 13
US-09-316-505-1
; Sequence 1, Application US/09316505
; Patent No. US20020111461A1
; GENERAL INFORMATION:
; APPLICANT: Burnier, John P.
; APPLICANT: Clark, Ross G.
; APPLICANT: Elias, Kathleen A.
; APPLICANT: McDowell, Robert S.
; APPLICANT: Rawson, Thomas E.
; APPLICANT: Somers, Todd C.
; APPLICANT: Stanley, Mark S.
; TITLE OF INVENTION: LOW MOLECULAR WEIGHT PEPTIDOMIMETIC GROWTH HORMONE SECRETAGOGUES
; FILE REFERENCE: P0850D2
; CURRENT APPLICATION NUMBER: US/09/316,505
; CURRENT FILING DATE: 1999-05-21
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; PRIOR APPLICATION NUMBER: US 09/057,074
; PRIOR FILING DATE: 1998-04-08
; NUMBER OF SEQ ID NOS: 2
; SEQ ID NO 1
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Homosapiens
US-09-316-505-1

Query Match          91.5%; Score 182; DB 9; Length 44;
Best Local Similarity 92.5%; Pred. No. 7.9e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40

RESULT 14
US-09-858-880-6
; Sequence 6, Application US/09858880
; Publication No. US20020061838A1
; GENERAL INFORMATION:
; APPLICANT: Holmquist, Daniel
; APPLICANT: Dormady, Daniel
; TITLE OF INVENTION: Peptide Pharmaceutical Formulations
; FILE REFERENCE: 1627.020US1
; CURRENT APPLICATION NUMBER: US/09/858,880
; CURRENT FILING DATE: 2001-05-17
; PRIOR APPLICATION NUMBER: US 60/205,377
; PRIOR FILING DATE: 2000-05-17
; PRIOR APPLICATION NUMBER: US 60/205,262
; PRIOR FILING DATE: 2000-05-19
; NUMBER OF SEQ ID NOS: 13
; SOFTWARE: FastSeq for Windows Version 4.0
; SEQ ID NO 6
; LENGTH: 44
; TYPE: PRT
; ORGANISM: Homo sapiens
; FEATURE:
; NAME/KEY: SITE
; LOCATION: (44)...(44)
; OTHER INFORMATION: Xaa = Leu-NH2
US-09-858-880-6

Query Match          91.5%; Score 182; DB 12; Length 44;
Best Local Similarity 92.5%; Pred. No. 7.9e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNOENGA 40

RESULT 15
US-10-016-403-8
; Sequence 8, Application US/10016403
; Publication No. US20020107505A1
; GENERAL INFORMATION:
; APPLICANT: Holladay, Leslie A.
; TITLE OF INVENTION: MODIFICATION OF POLYPEPTIDE DRUGS TO INCREASE ELECTROTRANSPORT FLUX
; NUMBER OF SEQUENCES: 10
; CORRESPONDENCE ADDRESS:
; ADDRESSEE: Stroud, Stroud, Willink, Thompson & Howard
; STREET: 25 West Main Street
; CITY: Madison
; STATE: WI
; COUNTRY: USA
; ZIP: 53701-2236
; COMPUTER READABLE FORM:
; MEDIUM TYPE: Floppy disk
; COMPUTER: IBM PC compatible
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```
/ OPERATING SYSTEM: PC-DOS/MS-DOS
/ SOFTWARE: PatentIn Release #1.0, Version #1.25
/ CURRENT APPLICATION DATA:
/ APPLICATION NUMBER: US/10/016,403
/ FILING DATE: 10-Dec-2001
/ CLASSIFICATION: <Unknown>
/ PRIOR APPLICATION DATA:
/ APPLICATION NUMBER: 08/466,610
/ FILING DATE: 1995-JUN-06
/ ATTORNEY/AGENT INFORMATION:
/ NAME: Frenchick, Grady J.
/ REGISTRATION NUMBER: 29,018
/ REFERENCE/DOCKET NUMBER: 8734.28
/ TELECOMMUNICATION INFORMATION:
/ TELEPHONE: 608-257-2281
/ TELEFAX: 608-257-7643
/ INFORMATION FOR SEQ ID NO: 8:
/ SEQUENCE CHARACTERISTICS:
/ LENGTH: 44 amino acids
/ TYPE: amino acid
/ TOPOLOGY: linear
/ FEATURE:
/ NAME/KEY: Peptide
/ LOCATION: 1..44
/ OTHER INFORMATION: /note= "human growth hormone
/ releasing hormone"
/ FEATURE:
/ NAME/KEY: Binding-site
/ LOCATION: 44
/ OTHER INFORMATION: /note= "carboxy terminal amide"
/ SEQUENCE DESCRIPTION: SEQ ID NO: 8:
US-10-016-403-8
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Query Match      91.5%; Score 182; DB 13; Length 44;
Best Local Similarity 92.5%; Pred. No. 7.9e-19;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy      1 YANAIFTNSYRKVLGQLSARKLLQDIMSRQGGERNQENGA 40
|:|||||
Db      1 YADAIFTNSYRKVLGQLSARKLLQDIMSRQGGESNQERGA 40
|:|||||
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Search completed: July 12, 2004, 20:57:45
Job time : 43.5 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:46:47 ; Search time 13 Seconds
(without alignments)
295.974 Million cell updates/sec

Title: US-10-021-403A-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 283366 seqs, 96191526 residues

Total number of hits satisfying chosen parameters: 283366

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

PIR_78:*
1: pir1:*
2: pir2:*
3: pir3:*
4: pir4:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	% Query Match	Length	ID	Description
1	188	94.5	44	1 RHGP	somatoliberin - pi
2	185	93.0	44	1 RHOS	somatoliberin - bo
3	182	91.5	108	1 RHUS	somatoliberin prec
4	146	73.4	104	2 A32731	somatoliberin prec
5	111.5	56.0	103	2 A41410	somatoliberin prec
6	87	43.7	173	2 S34767	neuropeptides prec
7	85	42.7	175	2 A37786	pituitary adenylat
8	80	40.2	145	2 A60038	vasoactive intesti
9	80	40.2	170	1 VRHU	vasoactive intesti
10	76	38.2	55	1 VRGP	vasoactive intesti
11	76	38.2	176	2 A34044	vasoactive intesti
12	74	37.2	170	1 VRRT	pituitary adenylat
13	74	37.2	170	2 A60037	vasoactive intesti
14	73	36.7	55	1 VRBO	vasoactive intesti
15	73	36.7	55	1 VRSH	vasoactive intesti
16	71	35.7	176	2 I84638	vasoactive intesti
17	69	34.7	55	1 VRRB	pituitary adenylat
18	69	34.7	58	1 VRPG	vasoactive intesti
19	65	32.7	28	2 A38232	vasoactive intesti
20	62.5	31.4	165	1 VRCH	vasoactive intesti
21	61	30.7	195	2 I50456	vasoactive intesti
22	59	29.6	151	1 GCCH	pituitary adenylat
23	59	29.6	206	2 I51301	glucagon precursor
24	59	29.6	537	2 E96606	proglucagon - chic
25	58	29.1	35	1 HWGD	hypothetical prote
26	56	28.1	38	1 HWGHS	exendin-2 - Gila m
27	55	27.6	429	2 T32290	exendin-1 - Mexica
28	54	27.1	27	1 SECH	hypothetical prote
29	54	27.1	28	2 B60071	secretin - chicken
					vasoactive intesti

30 54 27.1 28 2 A60304
31 54 27.1 38 2 A49165
32 54 27.1 433 2 D75632
33 52.5 26.4 249 2 T04128
34 52 26.1 28 2 A60303
35 52 26.1 38 2 A61070
36 52 26.1 3449 2 T01083
37 51.5 25.9 1478 2 C82689
38 51 25.6 181 2 S42380
39 51 25.6 300 2 F84594
40 51 25.6 418 2 G95231
41 51 25.6 432 2 A99096
42 51 25.6 507 2 C82371
43 51 25.6 581 2 B87768
44 51 25.6 1400 2 T20904
45 51 25.6 1427 2 T20903

ALIGNMENTS

RESULT 1

RHGP

somatoliberin - pig

N;Alternate names: growth hormone-releasing factor

C;Species: Sus scrofa domestica (domestic pig)

C;Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C;Accession: A01553

R;Bohlen, P.; Esch, F.; Brazeau, P.; Ling, N.; Guillemin, R.

Biochem. Biophys. Res. Commun. 116, 726-734, 1983

A;Title: Isolation and characterization of the porcine hypothalamic growth hormone relea

A;Reference number: A01553; MUID:84079886; PMID:6418166

A;Accession: A01553

A;Molecule type: protein

A;Residues: 1-44 <BOH>

C;Comment: The carboxyl-amidated somatoliberin is twice as active as that having a free

C;Comment: This protein was isolated from hypothalamus.

C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; duplication; hypothalamus

F;44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match 94.5%; Score 188; DB 1; Length 44;

Best Local Similarity 95.0%; Pred. No. 1.5e-18;

Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40

Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGERNOENGA 40

RESULT 2

RHOS

somatoliberin - bovine

N;Alternate names: growth hormone-releasing factor

C;Species: Bos primigenius taurus (cattle)

C;Date: 28-Aug-1985 #sequence_revision 28-Aug-1985 #text_change 21-Nov-1997

C;Accession: A01554

R;Esch, F.; Bohlen, P.; Ling, N.; Brazeau, P.; Guillemin, R.

Biochem. Biophys. Res. Commun. 117, 772-779, 1983

A;Title: Isolation and characterization of the bovine hypothalamic growth hormone relea

A;Reference number: A01554; MUID:84127993; PMID:6421287

A;Accession: A01554

A;Molecule type: protein

A;Residues: 1-44 <ESC>

C;Comment: This protein was isolated from hypothalamus.

C;Superfamily: glucagon

C;Keywords: amidated carboxyl end; duplication; hypothalamus

F;44/Modified site: amidated carboxyl end (Leu) #status experimental

Query Match 93.0%; Score 185; DB 1; Length 44;

Best Local Similarity 92.5%; Pred. No. 3.7e-18;

Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

F;1-20/Domains: signal sequence #status predicted <SIG>
F;21-31/Domains: propeptide #status predicted <PRP>
F;32-75/Product: somatoliberin #status experimental <SLB>
F;76-108/Domains: carboxyl-terminal propeptide #status predicted <CTP>
F;75/Modified site: amidated carboxyl end (Ileu) (amide in mature form from following gly

Query Match 91.5%; Score 182; DB 1; Length 108;
Best Local Similarity 92.5%; Pred. No. 2.5e-17;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGSRNQEIGA 40
Db 32 YADAIFTSYRKVLGQLSARKLLQDIMSROQGSGNQERGA 71

RESULT 4

A32731
somatoliberein precursor - rat
N:Alternate names: growth hormone-releasing hormone
C:Species: Rattus norvegicus (Norway rat)
C>Date: 13-Jul-1990 #sequence_revision 13-Jul-1990 #text_change 16-Jul-1999
C:Accession: A32731; A41366; I67421
R:Mayo, K.E.; Cerelli, G.M.; Rosenfeld, M.G.; Evans, R.M.
A>Title: Characterization of cDNA and genomic clones encoding the precursor to rat hypothalamic releasing hormone gene in placenta is directed by a promoter containing a TATA box
A:Reference number: A32731; MUID:85163768; PMID:3920534
A:Accession: A32731
A>Status: preliminary
A:Molecule type: DNA
A:Residues: 1-104 <MAX>
A:Cross-references: GB:X02320
R:Gonzalez-Crespo, S.; Boronot, A.
Proc. Natl. Acad. Sci. U.S.A. 88, 8749-8753, 1991
A>Title: Expression of the rat growth hormone-releasing hormone gene in placenta is directed by a promoter containing a TATA box
A:Reference number: A41366; MUID:92020929; PMID:1924334
A:Accession: A41366
A>Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-104 <GON>
A:Cross-references: GB:M73486; NID:g204311; PIDN:AAA41220.1; PID:g204312
R:Srivastava, C.H.; Montz, B.S.; Rothrock, J.K.; Peredo, M.J.; Pescovitz, O.H.
Endocrinology 136, 1502-1508, 1995
A>Title: Presence of a spermatogenic-specific promoter in the rat growth hormone-releasing hormone gene
A:Reference number: I53290; MUID:95203210; PMID:7895659
A:Accession: I67421
A>Status: preliminary; translated from GB/EMBL/DBJ
A:Molecule type: mRNA
A:Residues: 1-104 <RES>
A:Cross-references: EMBL:U0156; NID:g498584; PIDN:AAC52184.1; PID:g498585
C:Genetics:
A:Gene: GRH
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 73.4%; Score 146; DB 2; Length 104;
Best Local Similarity 75.7%; Pred. No. 1.7e-12;
Matches 28; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGRNQE 37
Db 31 HADAIFTSYRKVLGQLYAKLLHLIMNQOGRNQE 67

RESULT 5

A41410
somatoliberein precursor - mouse
N:Alternate names: growth hormone-releasing hormone precursor
C:Species: Mus musculus (house mouse)
C>Date: 03-Apr-1992 #sequence_revision 03-Apr-1992 #text_change 16-Jul-1999
C:Accession: A41410
R:Frohman, M.A.; Downs, T.R.; Chomczynski, P.; Frohman, L.A.
Mol. Endocrinol. 3, 1529-1536, 1989
A>Title: Cloning and characterization of mouse growth hormone-releasing hormone (GRH) cDNA

A:Title: Cloning and molecular characterization of complementary deoxyribonucleic acid in the rat testis.
A:Reference number: S58467; MUID:95136947; PMID:7835287
A:Accession: S58467
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-103 <PRO>
A:Cross-references: GB:M31658; NID:g193635; PIDN:AAA37739.1; PID:g309276
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 56.0%; Score 111.5; DB 2; Length 103;
Best Local Similarity 60.0%; Pred. No. 7.6e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 40
Db 31 HVDAFTTYNRKLLSOLYARKVIQDMMNK-QGERIQEQRA 69

RESULT 6
S34767

A:Title: Two salmon neurotensins encoded by one brain cDNA are structurally related to vasopressin.
A:Reference number: S34766; MUID:93345532; PMID:834311
A:Accession: S34767
A:Molecule type: mRNA
A:Residues: 1-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 4 and SS/RACE 2
A:Accession: S34766
A:Molecule type: mRNA
A:Residues: 1-21, 'S', '23-60, 'P', '62-77, 'G', '79-121, 'T', '123-164, 'N', '166-170, 'G', '172-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 5 and SS/RACE 7
A:Note: the GenBank entry ONNEUR, release 117.0, has ambiguous nucleotides for the position 117.
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; neurotensin

F:1-21/Domain: signal sequence #status predicted <SIG>
F:82-126/Product: growth hormone-releasing hormone #status predicted <GHR>
F:123-166/Product: pituitary adenylate cyclase-activating polypeptide #status predicted
F:166/Modified site: amidated carboxyl end (Lys) (in mature form from following glycine)

Query Match 43.7%; Score 87; DB 2; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.00027;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 32
Db 82 HADGWFNKAERKALGOLSARKYLHSLAKRVG 113

RESULT 7
A37786

A:Title: Cloning and molecular characterization of complementary deoxyribonucleic acid in the rat testis.
A:Reference number: S58467; MUID:95136947; PMID:7835287
A:Accession: S58467
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-103 <PRO>
A:Cross-references: GB:M31658; NID:g193635; PIDN:AAA37739.1; PID:g309276
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 56.0%; Score 111.5; DB 2; Length 103;
Best Local Similarity 60.0%; Pred. No. 7.6e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 40
Db 31 HVDAFTTYNRKLLSOLYARKVIQDMMNK-QGERIQEQRA 69

RESULT 6
S34767

A:Title: Two salmon neurotensins encoded by one brain cDNA are structurally related to vasopressin.
A:Reference number: S34766; MUID:93345532; PMID:834311
A:Accession: S34767
A:Molecule type: mRNA
A:Residues: 1-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 4 and SS/RACE 2
A:Accession: S34766
A:Molecule type: mRNA
A:Residues: 1-21, 'S', '23-60, 'P', '62-77, 'G', '79-121, 'T', '123-164, 'N', '166-170, 'G', '172-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 5 and SS/RACE 7
A:Note: the GenBank entry ONNEUR, release 117.0, has ambiguous nucleotides for the position 117.
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; neurotensin

F:1-21/Domain: signal sequence #status predicted <SIG>
F:82-126/Product: growth hormone-releasing hormone #status predicted <GHR>
F:123-166/Product: pituitary adenylate cyclase-activating polypeptide #status predicted
F:166/Modified site: amidated carboxyl end (Lys) (in mature form from following glycine)

Query Match 43.7%; Score 87; DB 2; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.00027;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 32
Db 82 HADGWFNKAERKALGOLSARKYLHSLAKRVG 113

RESULT 7
A37786

A:Title: Cloning and molecular characterization of complementary deoxyribonucleic acid in the rat testis.
A:Reference number: S58467; MUID:95136947; PMID:7835287
A:Accession: S58467
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-103 <PRO>
A:Cross-references: GB:M31658; NID:g193635; PIDN:AAA37739.1; PID:g309276
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 56.0%; Score 111.5; DB 2; Length 103;
Best Local Similarity 60.0%; Pred. No. 7.6e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 40
Db 31 HVDAFTTYNRKLLSOLYARKVIQDMMNK-QGERIQEQRA 69

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A:Title: Two salmon neurotensins encoded by one brain cDNA are structurally related to vasopressin.
A:Reference number: S34766; MUID:93345532; PMID:834311
A:Accession: S34767
A:Molecule type: mRNA
A:Residues: 1-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 4 and SS/RACE 2
A:Accession: S34766
A:Molecule type: mRNA
A:Residues: 1-21, 'S', '23-60, 'P', '62-77, 'G', '79-121, 'T', '123-164, 'N', '166-170, 'G', '172-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 5 and SS/RACE 7
A:Note: the GenBank entry ONNEUR, release 117.0, has ambiguous nucleotides for the position 117.
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; neurotensin

F:1-21/Domain: signal sequence #status predicted <SIG>
F:82-126/Product: growth hormone-releasing hormone #status predicted <GHR>
F:123-166/Product: pituitary adenylate cyclase-activating polypeptide #status predicted
F:166/Modified site: amidated carboxyl end (Lys) (in mature form from following glycine)

Query Match 43.7%; Score 87; DB 2; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.00027;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 32
Db 82 HADGWFNKAERKALGOLSARKYLHSLAKRVG 113

RESULT 7
A37786

A:Title: Cloning and molecular characterization of complementary deoxyribonucleic acid in the rat testis.
A:Reference number: S58467; MUID:95136947; PMID:7835287
A:Accession: S58467
A:Status: preliminary
A:Molecule type: mRNA
A:Residues: 1-103 <PRO>
A:Cross-references: GB:M31658; NID:g193635; PIDN:AAA37739.1; PID:g309276
C:Superfamily: glucagon
C:Keywords: duplication

Query Match 56.0%; Score 111.5; DB 2; Length 103;
Best Local Similarity 60.0%; Pred. No. 7.6e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 40
Db 31 HVDAFTTYNRKLLSOLYARKVIQDMMNK-QGERIQEQRA 69

RESULT 6
S34767

A:Title: Two salmon neurotensins encoded by one brain cDNA are structurally related to vasopressin.
A:Reference number: S34766; MUID:93345532; PMID:834311
A:Accession: S34767
A:Molecule type: mRNA
A:Residues: 1-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 4 and SS/RACE 2
A:Accession: S34766
A:Molecule type: mRNA
A:Residues: 1-21, 'S', '23-60, 'P', '62-77, 'G', '79-121, 'T', '123-164, 'N', '166-170, 'G', '172-173 <PAR>
A:Cross-references: EMBL:X73233; NID:g396194; PIDN:CAA51705.1; PID:g396195
A:Experimental source: Clones SS/PCR 5 and SS/RACE 7
A:Note: the GenBank entry ONNEUR, release 117.0, has ambiguous nucleotides for the position 117.
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; neurotensin

F:1-21/Domain: signal sequence #status predicted <SIG>
F:82-126/Product: growth hormone-releasing hormone #status predicted <GHR>
F:123-166/Product: pituitary adenylate cyclase-activating polypeptide #status predicted
F:166/Modified site: amidated carboxyl end (Lys) (in mature form from following glycine)

Query Match 43.7%; Score 87; DB 2; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.00027;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGOLSARKLQDIMSROQGE 32
Db 82 HADGWFNKAERKALGOLSARKYLHSLAKRVG 113

RESULT 7
A37786

F;81-107/Product: peptide histidine-methionine (PHM-27) #status experimental <PHM>
F;125-132/Product: vasoactive intestinal peptide #status experimental <VIP>
F;68-133/Binding site: carbohydtrate (Asn) (covalent) #status predicted
F;107/Modified site: amidated carboxyl end (Met) (amide in mature form from following g1
F;152/Modified site: amidated carboxyl end (Asn) (amide in mature form from following g1

Query Match 40.2%; Score 80; DB 1; Length 170;
Best Local Similarity 36.8%; Pred. No. 0.0023;
Matches 14; Conservative 12; Mismatches 12; Indels 0; Gaps 0;

QY 1 YANAIFTNYSRKVLGQLSARKKLQDIMSRQGGERNQEN 38
::: :|||: :|||||:|:|:|:|:|:
DB 81 HAGVFTSDYSELGLQLSARKYLSELMGKRVSSNISD 118
::: :|||: :|||||:|:|:|:|:|:

RESULT 10
VRGP
vasoactive intestinal peptide precursor - guinea pig (fragments)
N:Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C:Species: Cavia porcellus (Guinea pig)
C>Date: 31-Mar-1988 #sequence_revision 19-Apr-1996 #text_change 20-Mar-1998
C:Accession: A26175; S09688; A57082; B60304
R:Du, B.H.; Eng, J.; Hulmes, J.D.; Chang, M.; Pan, Y.C.E.; Yalow, R.S.
Biochem. Biophys. Res. Commun. 128, 1093-1098, 1985
A:Title: Guinea pig has a unique mammalian VIP.
A:Reference number: A26175; PMID:85225523; PMID:4004849
A:Accession: A26175
A:Molecule type: protein
A:Residues: 28-55 <DUB>
R:Busscall, L.; Cauvin, A.; Gourlet, P.; Gosse, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A:Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A:Reference number: S09688; PMID:90254163; PMID:2340294
A:Accession: S09688
A:Molecule type: protein
A:Residues: 1-27 <BUS>
A:Accession: A57082
A:Molecule type: protein
A:Residues: 28-55 <BUZ>
C:Superfamily: glucagon
C:Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasod
F;1-27/Product: peptide histidine-isoleucine #status experimental <P27>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 38.2%; Score 76; DB 1; Length 55;
Best Local Similarity 48.1%; Pred. No. 0.0024; 5; Indels 0; Gaps 0;
Matches 13; Conservative

QY 1 YANAIFTNYSRKVLGQLSARKKLQDIM 27
::: :|||: :|||||:|:|:|:|:|:
DB 1 HAGVFTSDYSELGLQLSARKYLSESLI 27
::: :|||: :|||||:|:~::~:

RESULT 11
A34044
pituitary adenylate cyclase-activating polypeptide precursor - sheep
N:Contains: PACAP-27; PACAP-38
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C>Date: 07-Jun-1990 #sequence_revision 07-Jun-1990 #text_change 20-Jun-2000
C:Accession: A34044; I47059; A33432; A35414; A61063; B61063
R:Kimura, C.; Ohkubo, S.; Ogi, K.; Hosoya, M.; Ichihara, H.; Miyata, A.; Jiang, L.
Biochem. Biophys. Res. Commun. 166, 81-89, 1990
A:Title: A novel peptide which stimulates adenylyl cyclase: molecular cloning and charac
A:Reference number: A90160; PMID:90147744; PMID:2302217
A:Accession: A34044
A:Molecule type: PRNA
A:Residues: 1-176 <XIM>
A:Cross-references: GB:M32216; NID:g166029; PID:AAA31575.1; PID:g166030
R:Ohkubo, S.; Kimura, C.; Ogi, K.; Okazaki, K.; Hosoya, M.; Miyata, A.; Arimura
DNA Cell Biol. 11, 21-30, 1992
A:Title: Binary structure and characterization of the precursor to human pituitary ade

Mon Jul 19 13:55:15 2004

A;Status: preliminary; translated from GB/EMBL/DDBJ
A:Molecule type: DNA
A:Residues: 1-35 <RES>
A;Cross-references: EMBL:X74297; NID:g895871; PIDN:CAA52350.1; PID:g895872
C;Comment: Two active peptides are released from the VIP precursor by cleavage at paired C;Genetics:
A;Gene: Vip
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; cerebral cortex; duplication; glycoprotein; hormone;
F;1-21/Domain: signal sequence #status predicted <SIG>
F;81-107/Product: PHI-27 #status predicted <PHI>
F;125-152/Product: vasoactive intestinal peptide #status predicted <VIP>
F;107/Modified site: amidated carboxyl end (ile) (amide in mature form from following gl
F;133/Binding site: carbohydrate (Asn) (covalent) #status predicted
F;152/Modified site: amidated carboxyl end (Asn) (amide in mature form from following gl

Query Match 37.2%; Score 74; DB 2; Length 170;
Best Local Similarity 36.7%; Pred. No. 0.015;
Matches 11; Conservative 6; Indels 0; Gaps 0;

Qy 1 YANAIFNYSYRKVLGQLSARKLLQDMSRQ 30
HADGVFTSDYSRLGIQSAKKYLESLIGKR 110

Dd

RESULT 14

VRBO

vasoactive intestinal peptide precursor - bovine (fragments)
N;Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C;Species: Bos primigenius taurus (cattle)
C;Date: 26-Apr-1996 #sequence revision 03-May-1996 #text_change 07-May-1999
C;Accession: A61643; A61644; S09689
R;Carlquist, M.; Kaiser, R.; Tatemoto, K.; Joernvall, H.; Mutt, V.
Eur. J. Biochem. 144, 243-247, 1984
A;Title: A novel form of the polypeptide PHI isolated in high yield from bovine upper in
A;Reference number: A61643; MUID:85027215; PMID:6548446
A;Accession: A61643
A;Molecule type: protein
A;Residues: 1-27 <CAR>
R;Carlquist, M.; Mutt, V.; Joernvall, H.
FEBS Lett. 108, 457-460, 1979
A;Title: Isolation and characterization of bovine vasoactive intestinal peptide (VIP).
A;Reference number: A61644; MUID:80092152; PMID:520589
A;Accession: A61644
A;Molecule type: protein
A;Residues: 28-55 <CA2>
R;Buscail, L.; Cauvin, A.; Gourlet, P.; Gossen, D.; de Neef, P.; Rathe, J.; Robberecht,
Biochim. Biophys. Acta 1038, 355-359, 1990
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: S09688; MUID:90254163; PMID:2340294
A;Contents: annotation; comparison of mammalian PHI sequences
C;Keywords: glucagon
C;Keywords: amidated carboxyl end; duplication; hormone; intestine; neuropeptide; vasod
F;1-27/Product: peptide histidine-isoleucine #status experimental <P27>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 36.7% Score 73; DB 1; Length 55;

QY 1 YANAIFNYSYRKVIGQLSARKLLQDIM 27
 |: :|: | : :|||:|: | : :
Db 1 HADGVFTSYGRLLGQLSAKKYLESLI 27

RESULT 15
VRSH
vasoactive intestinal peptide precursor - sheep (fragments)
N:Contains: peptide histidine-isoleucine (PHI-27); vasoactive intestinal peptide (VIP)
C:Species: Ovis orientalis aries, Ovis ammon aries (domestic sheep)
C:Species: war_1993 #sequence revision 19-Apr-1996 #text change 20-Mar-1998

C;Accession: B60072; A60072; C61063; A43974
R;Bounjoua, Y.; Vandermeers, A.; Robberecht, P.; Vandermeers-Piret, M.C.; Christophe, J.
Regul. Pept. 32, 169-179, 1991
A;Title: Purification and amino acid sequence of vasoactive intestinal peptide, peptide
A;Reference number: A60072; MUID:91239834; PMID:2034821
A;Accession: B60072
A:Molecule type: protein
A:Residues: 1-27 <BOU>
A;Accession: A60072
A:Molecule type: protein
A:Residues: 28-55 <BO2>
R;Miyata, A.; Jiang, L.; Stibbs, H.H.; Arimura, A.
Regul. Pept. 38, 145-154, 1992
A;Title: Chemical characterization of vasoactive intestinal polypeptide-like immunoreact
A;Reference number: A61063; MUID:92245116; PMID:1574609
A;Accession: C61063
A:Molecule type: protein
A:Residues: 28-55 <MIY>
A;Experimental source: hypothalamus, intestine
R;Gafvelin, G.
Peptides 11, 703-706, 1990
A;Title: Isolation and primary structure of VIP from sheep brain.
A;Reference number: A43974; MUID:91045331; PMID:2235680
A;Accession: A43974
A:Molecule type: protein
A:Residues: 28-55 <GAF>
A;Experimental source: brain
C;Superfamily: glucagon
C;Keywords: amidated carboxyl end; brain; duplication; hormone; intestine; neuropeptide
F;1-27/Product: peptide histidine-isoleucine #status experimental <PHI>
F;28-55/Product: vasoactive intestinal peptide #status experimental <VIP>
F;27/Modified site: amidated carboxyl end (Ile) (in mature form) #status experimental
F;55/Modified site: amidated carboxyl end (Asn) (in mature form) #status experimental

Query Match 36.7%; Score 73; DB 1; Length 55;
Best Local Similarity 44.4%; Pred. No. 0.0061;
Matches 12; Conservative 10; Mismatches 5; Indels 0; Gaps 0;

QY 1 YANAIFTNYSRKVLGQLSARKLLQDIM 27
DB 1 HADGVFTSDYRLGLQLSAKKYLESLI 27

Search completed: July 12, 2004, 20:53:06
Job time : 14 secs

Search completed: July 12, 2004, 20:53:06
Job time : 14 secs

GenCore version 5.1.6
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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:42:46 ; Search time 10 Seconds
(without alignments)
208.281 Million cell updates/sec

Title: US-10-021-403a-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 141681 seqs, 52070155 residues

Total number of hits satisfying chosen parameters: 141681

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database : SwissProt_42:*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Match %	Query Length	DB ID	Description
1	188	94.5	44	1 SLIB_PIG	P01287 sus scrofa
2	185	93.0	106	1 SLIB_BOVIN	P01288 bos taurus
3	184	92.5	44	1 SLIB_SHEEP	P07217 ovis aries
4	182	91.5	108	1 SLIB_HUMAN	P01286 homo sapien
5	179	89.9	107	1 SLIB_MESAU	Q60549 mesocricetu
6	146	73.4	104	1 SLIB_RAT	P09916 rattus norv
7	111.5	56.0	103	1 SLIB_MOUSE	P16043 mus musculu
8	87	43.7	173	1 PACA_ONCNE	P41585 oncorhynchu
9	87	43.7	175	1 PACA_CHICK	P41534 g glucagon-
10	86	43.2	45	1 SLIB_CYPCA	P43692 cyprinus ca
11	86	43.2	175	1 PACA_MOUSE	O70176 m pituitary
12	85	42.7	175	1 PACA_RAT	P13589 r pituitary
13	80	40.2	170	1 VIP_HUMAN	P01282 homo sapien
14	76	38.2	172	1 VIP_CAVPO	P04566 cavia porce
15	76	38.2	176	1 PACA_SHEEP	P16613 o pituitary
16	74	37.2	170	1 VIP_MOUSE	P32648 mus musculu
17	74	37.2	170	1 VIP_RAT	P01283 rattus norv
18	74	37.2	171	1 PACA_RANRI	Q09169 r glucagon-
19	73	36.7	72	1 VIP_BOVIN	P81401 bos taurus
20	71	35.7	176	1 PACA_HUMAN	P18509 h pituitary
21	69	34.7	72	1 VIP_PIG	P01284 sus scrofa
22	69	34.7	72	1 VIP_RABIT	P32649 oryctolagus
23	65	32.7	28	1 VIP_DIDMA	P39089 didelphis m
24	62.5	31.4	200	1 VIP_CHICK	P48143 gallus gall
25	62.5	31.4	200	1 VIP_MELGA	P48144 clarias mac
26	61	30.7	195	1 PACA_CLAMA	P01277 gallus gall
27	59	29.6	206	1 GLUC_CHICK	O42143 xenopus lae
28	59	29.6	266	1 GLUC_CHICK	P04204 heloderma s
29	58	29.1	35	1 EXE2_HELNU	P41535 s pituitary
30	58	29.1	73	1 PACA_PIG	Q9ng76 homo sapien
31	57	28.6	525	1 MEPE_HUMAN	P04203 heloderma s
32	56	28.1	38	1 EXE1_HELNU	P81039 uranoscopus
33	56	28.1	38	1 PACA_UAJA	

RESULT 1
SLIB_PIG
ID SLIB_PIG STANDARD; PRT; 44 AA.
AC P01287;
DT 21-JUL-1986 (Rel. 01, Created)
DT 21-JUL-1986 (Rel. 01, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH.

OS Sus scrofa (Pig).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; OC Mammalia; Eutheria; Cetartiodactyla; Suina; Suidae; Sus.
OX NCBI_TaxID=9823;
RN [1]
RP SEQUENCE.
RC TISSUE=Hypothalamus;
RX MEDLINE=84079886; PubMed=6418166;
RA Boehlen P., Esch F., Brazeau P., Ling N., Guillemin R.;
RT "Isolation and characterization of the porcine hypothalamic growth hormone releasing factor.";
RL Biochem. Biophys. Res. Commun. 116:726-734(1983).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the adenylophypyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- MISCELLANEOUS: The carboxyl-amidated somatoliberin is twice as active as that having a free carboxyl end.
CC -!- SIMILARITY: Belongs to the glucagon family.

DR PIR: A01553; RHPG.
DR InterPro: IPR000532; Glucagon.
DR Pfam: PF00123; hormone2; 1.
DR SMART: SM00070; GLUCA; 1.
DR PROSITE: PS00260; GLUCAGON; 1.
KW Glucagon family; Amidation; Hypothalamus.
FT MOD_RES 44 44
SQ SEQUENCE 44 AA; 5110 MW; 1271DC7059F4802E CRC64;

Query Match 94.5%; Score 188; DB 1; Length 44;
Best Local Similarity 95.0%; Pred. No. 2.7e-19;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40
Db 1 YADAIFTSYRKVLGQLSARKLLQDIMSROQGGERNQENGA 40

RESULT 2
SLIB_BOVIN
ID SLIB_BOVIN STANDARD; PRT; 106 AA.
AC P01288; Q9MZD4;
DT 21-JUL-1986 (Rel. 01, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (growth hormone-releasing factor) (GRF) (Growth hormone-releasing hormone) (GHRH).
GN GHRH.

OC Mammalia; Rutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
 OC Bovidae; Caprinae; Ovis.
 OX NCBI_TaxID=9940;
 RN [1]
 RP SEQUENCE.
 RX MEDLINE=85096956; PubMed=6440561;
 RA Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B.,
 RA Guillemin R.,
 RA "Growth hormone-releasing factor from ovine and caprine hypothalamus:
 RT isolation, sequence analysis and total synthesis.",
 RL Biochem. Biophys. Res. Commun. 125:606-614(1984).
 CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
 CC adenyphophyse to stimulate the secretion of growth hormone.
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- SIMILARITY: Belongs to the glucagon family.
 CC InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 1.
 DR SMART: SM00070; GLUCA; 1.
 DR PROSITE: PS00260; GLUCAGON; 1.
 DR Glucagon family; Amidation; Hypothalamus.
 KW MOD RES 44 44
 FT AMIDATION.
 SQ SEQUENCE 44 AA; 5123 MW; 9F907C6769F48030 CRC64;
 Query Match 92.5%; Score 184; DB 1; Length 44;
 Best Local Similarity 90.0%; Pred. No. 9.4e-19; Indels 0; Gaps 0;
 Matches 36; Conservative 3; Mismatches 1;
 QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQGGERNQENGA 40
 DB 1 YADAIFTSYRKVLGQLSARKLLQDIMSRQGGERNQENGA 40
 RESULT 4
 SLIB HUMAN STANDARD; PRT; 108 AA.
 ID SLIB_HUMAN
 AC P01286;
 DT 21-JUL-1986 (Rel. 01, Created)
 DT 21-JUL-1986 (Rel. 01, Last sequence update)
 DT 15-MAR-2004 (Rel. 43, Last annotation update)
 DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
 DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
 DE (Growth hormone-releasing hormone) (GHRH) (Somatotocin) (Sermorelin).
 GN GHRH OR GHRF.
 OS Homo sapiens (Human).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
 OX NCBI_TaxID=9606;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=83273612; PubMed=6192430;
 RA Gubler U., Monahan J.J., Lomedico P.T., Bhatt R.S., Collier K.J.,
 RA Hoffman B.J., Boehlen P., Esch F., Ling N., Zeytin F., Brazeau P.,
 RA Poonian M.S., Gage L.P.;
 RA "Cloning and sequence analysis of cDNA for the precursor of human
 RT growth hormone-releasing factor, somatotocin.",
 RL Proc. Natl. Acad. Sci. U.S.A. 80:4311-4314(1983).
 RN [2]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=85113171; PubMed=3918305;
 RA Mayo K.E., Cerelli G.M., Lebo R.V., Bruce B.D., Rosenfeld M.G.,
 RA Evans R.M.;
 RA "Gene encoding human growth hormone-releasing factor precursor:
 RT structure, sequence, and chromosomal assignment.",
 RL Proc. Natl. Acad. Sci. U.S.A. 82:63-67(1985).
 RN [3]
 RP SEQUENCE FROM N.A.
 RX MEDLINE=21638749; PubMed=11780052;
 RA Deloukas P., Matthews L.H., Ashurst J., Burton J., Gilbert J.G.R.,
 RA Jones M., Stavrides G., Almeida J.P., Babbage A.K., Bagguley C.L.,
 RA Bailey J., Barlow K.F., Bates K.N., Beard L.M., Beare D.M.,
 RA Beasley O.P., Bird C.P., Blakey S.E., Bridgeman A.M., Brown A.J.,
 RA Buck D., Burrill W.D., Butler A.P., Carder C., Carter N.P.,
 RA Chapman J.C., Clamp M., Clark G., Clark L.N., Clark S.X., Clee C.M.,
 RA Clegg S., Cobley V.E., Collier R.E., Connor R.E., Corby N.R.,

OS Bos taurus (Bovine), and
 OS Capra hircus (Goat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Rutheria; Cetartiodactyla; Ruminantia; Pecora; Bovoidea;
 OC Bovidae; Bovinae; Bos.
 OX NCBI_TaxID=9913, 9925;
 RN [1]
 RP SEQUENCE FROM N.A.
 RX SPECIES=Bovine;
 RA Zhou P., Kazmer G.W., Yang X.;
 RL Submitted (MAR-2000) to the EMBL/GenBank/DBJ databases.
 RN [2]
 RP SEQUENCE OF 31-74.
 RC SPECIES=Bovine;
 RX MEDLINE=84127993; PubMed=6421287;
 RA Esch F., Boehlen P., Ling N., Brazeau P., Guillemin R.;
 RA "Isolation and characterization of the bovine hypothalamic growth
 RT hormone releasing factor.",
 RL Biochem. Biophys. Res. Commun. 117:772-779(1983).
 RN [3]
 RP SEQUENCE OF 31-74.
 RC SPECIES=C hircus;
 RX MEDLINE=85096956; PubMed=6440561;
 RA Brazeau P., Boehlen P., Esch F., Ling N., Wehrenberg W.B.,
 RA Guillemin R.;
 RA "Growth hormone-releasing factor from ovine and caprine hypothalamus:
 RT isolation, sequence analysis and total synthesis.",
 RL Biochem. Biophys. Res. Commun. 125:606-614(1984).
 CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
 CC adenyphophyse to stimulate the secretion of growth hormone.
 CC -!- SUBCELLULAR LOCATION: Secreted.
 CC -!- SIMILARITY: Belongs to the glucagon family.
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 CC or send an email to license@isb-sib.ch).
 CC -----
 DR EMBL; AF242855; AAF89171.1; --
 DR InterPro: IPR000532; Glucagon.
 DR Pfam: PF00123; hormone2; 1.
 DR SMART: SM00070; GLUCA; 1.
 DR PROSITE: PS00260; GLUCAGON; 1.
 DR Glucagon family; Signal; Amidation; Hypothalamus.
 KW SIGNAL 1 19 POTENTIAL
 FT PEPTIDE 31 74 SOMATOLIBERIN
 FT MOD RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP).
 SQ SEQUENCE 106 AA; 12058 MW; 6584F4F25ABEF178 CRC64;
 Query Match 93.0%; Score 185; DB 1; Length 106;
 Best Local Similarity 92.5%; Pred. No. 1.8e-18;
 Matches 37; Conservative 2; Mismatches 1; Indels 0; Gaps 0;
 QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSRQGGERNQENGA 40
 DB 31 YADAIFTSYRKVLGQLSARKLLQDIMSRQGGERNQENGA 70
 RESULT 3
 SLIB SHEEP STANDARD; PRT; 44 AA.
 ID SLIB_SHEEP
 AC P07217;
 DT 01-APR-1988 (Rel. 07, Created)
 DT 01-APR-1988 (Rel. 07, Last sequence update)
 DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth
 DE hormone-releasing hormone) (GHRH).
 GN GHRH.
 OS Ovis aries (Sheep).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

RA Coulson A., Coville G.J., Deadman R., Dhani P.D., Dunn M.,
RA Ellington A.G., Frankland J.A., Fraser A., French L., Garner P.,
RA Grafham D.V., Griffiths M.N.D., Griffiths M.N.D., Gwilliam R., Hall R.E.,
RA Hammond S., Harley J.L., Heath P.D., Ho S., Holden J.L., Howden P.J.,
RA Huckle E., Hunt A.R., Hunt S.B., Jekosch K., Johnson C.M., Johnson D.,
RA Kay M.P., Kimberley A.M., King A., Knights A., Laird G.K., Lawlor S.,
RA Leivaeslailho M.H., Leversha M.A., Lloyd C., Lloyd D.M., Lovell J.D.,
RA Marsh V.L., Martin S.L., McConnachie L.J., McIlroy D.M., Lovell J.D.,
RA Milne S.A., Mistry D., Moore W.J.F., Mullikin J.C., McKerron T.,
RA Oliver K., Parker A., Patel R., Pearce T.A.V., Peck A.I.,
RA Phillimore B.J.C.T., Prathalingam S.R., Plumb R.W., Ramsay H.,
RA Rice C.M., Ross M.T., Scott C.E., Sehra H.K., Shownkeen R., Sims S.,
RA Skuce C.D., Smith M.L., Soderlund C., Steward C.A., Sulten J.E.,
RA Swann R.M., Sycamore N., Taylor R., Tee L., Thomas D.W., Thorpe A.,
RA Tracey A., Tromans A.C., Vaudin M., Wall M., Wallis J.M.,
RA Whitehead S.L., Whittaker P., Willey D.L., Williams L., Williams S.A.,
RA Wilming L., Wray P.W., Hubbard T., Durbin R.M., Bentley D.R., Beck S.,
RA Rogers J.,
RT "The DNA sequence and comparative analysis of human chromosome 20.";
RL Nature 414:865-871(2001).
RN [4]
RP SEQUENCE OF 6-101 FROM N.A.
RX MEDLINE=84039819; PubMed=6415488;
RA Mayo K.E., Vale W., Rivier J., Rosenfeld M.G., Evans R.M.;
RT "Expression-cloning and sequence of a cDNA encoding human growth
RT hormone-releasing factor.";
RL Nature 306:86-88(1983).
RN [5]
RP SEQUENCE OF 32-75.
RX MEDLINE=83016666; PubMed=6812220;
RA Guillemin R., Brazeau P., Boehlen P., Esch F., Ling N.,
RA Wehrenberg W.B.;
RT "Growth hormone-releasing factor from a human pancreatic tumor that
RT caused acromegaly.";
RL Science 218:585-587(1982).
RN [6]
RP STRUCTURE BY NMR OF 32-60.
RX MEDLINE=87141181; PubMed=3029387;
RA Clore G.M., Martin S.R., Gronenborn A.M.;
RT "Solution structure of human growth hormone releasing factor.
RT Combined use of circular dichroism and nuclear magnetic resonance
RT spectroscopy.";
RL J. Mol. Biol. 191:553-561(1986).
RN [7]
RP STRUCTURE BY NMR OF 32-60.
RX MEDLINE=87141181; PubMed=3029387;
RA Clore G.M., Martin S.R., Gronenborn A.M.;
RT "Solution structure of human growth hormone releasing factor.
RT Combined use of circular dichroism and nuclear magnetic resonance
RT spectroscopy.";
RL J. Mol. Biol. 191:553-561(1986).
RN [7]
RP FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- PHARMACEUTICAL: Available under the names Geref (Serono). Geref is
CC a synthetic acetylated form of residues 1 to 29 of GRH. Used
CC for the treatment of growth hormone deficiency.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC
CC EMBL; L29177; -; NOT ANNOTATED_CDS.
CC EMBL; L00137; AAA52608.1; -;
CC EMBL; L00134; AAA52609.1; JOINED.
CC EMBL; L00135; AAA52608.1; JOINED.
CC EMBL; L00136; AAA52608.1; JOINED.
CC EMBL; L00137; AAA52609.1; -;
CC EMBL; L00137; AAA52608.1; -;

DR EMBL; L00134; AAA52609.1; JOINED.
DR EMBL; L00135; AAA52609.1; JOINED.
DR EMBL; L00136; AAA52609.1; JOINED.
DR EMBL; AL031659; CAB41762.1; -;
DR EMBL; X00094; CAA24955.1; -;
DR EMBL; X00094; CAA24955.1; -;
DR PIR; A21902; RHHS.
DR Genew; HGNC:4265; GHRH.
DR MIM; 139190; -;
DR GO; GO:0005102; F:receptor binding; TAS.
DR GO; GO:0007267; P:cell-cell signaling; TAS.
DR GO; GO:0007165; P:signal transduction; TAS.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Signal; Amidation; Hypothalamus.
FT SIGNAL 1 20
FT PEPTIDE 32 75 SOMATOLIBERIN
FT MOD RES 75 75 AMIDATION (G-76 PROVIDE AMIDE GROUP).
FT VARIANT 103 103 Missing (in a second precursor).
FT /FTIDEVAR 003186.
FT CONFLICT 92 92 E -> D (IN REF. 4).
SQ SEQUENCE 108 AA; 12447 MW; 366AE05383488C53 CRC64;
Query Match 91.5%; Score 182; DB 1; Length 108;
Best Local Similarity 92.5%; Pred. No. 4.6e-18;
Matches 37; Conservative 1; Mismatches 2; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQGERNQENGA 40
DB 32 YADAIFTSYRKVLGQLSARKLLQDIMSQQGERNQENGA 71
RESULT 5
SLIB_MESAU STANDARD; PRT; 107 AA.
AC Q60549;
DT 15-JUL-1998 (Rel. 36, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)
DE (Growth hormone-releasing hormone) (GHRH).
GN GHRH OR GRF.
OS Mesocricetus auratus (Golden hamster).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
OC Mesocricetus.
OX NCBI_TaxID=10036;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Hypothalamus;
RX MEDLINE=95218216; PubMed=7703510;
RA Ono M., Miki N., Demura H., Tadokoro K., Nagafuchi S., Yamada M.;
RT "Molecular cloning of cDNA encoding the precursor for hamster
RT hypothalamic growth hormone-releasing factor.";
RL DNA Seq. 5:93-102(1994).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenylophypophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC
CC EMBL; D23671; BAA04901.1; -;
CC InterPro; IPR000532; Glucagon.
CC Pfam; PF00123; hormone2; 1.

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CC -----

CC DR SMART; SM00070; GLUCA; 1.

CC DR PROSITE; PS00260; GLUCAGON; 1.

CC KW Glucagon family; Signal; Amidation; Hypothalamus.

CC FT SIGNAL 1 19 POTENTIAL.

CC FT PEPTIDE 31 74 SOMATOLIBERIN.

CC FT MOD_RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP) (BY

CC FT SIMILARITY).

CC SQ SEQUENCE 107 AA; 12298 MW; 3DEPA8D4B3F7636 CRC64;

Query Match 89.9%; Score 179; DB 1; Length 107;

Best Local Similarity 92.3%; Pred. No. 1.2e-17;

Matches 36; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGSLQSLARKLLQDIMSROQGERNQEG 39

DB 31 YADAIFTSYRKVLGSLQSLARKLLQDIMSROQGERNQEG 69

RESULT 6

SLIB RAT

ID SLIB RAT STANDARD; PRT; 104 AA.

AC P099T6;

DT 01-MAR-1989 (Rel. 10, Created)

DT 01-FEB-1991 (Rel. 17, Last sequence update)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)

DE (Growth hormone-releasing hormone) (GHRH).

GN GHRH.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OC NCBI_TaxID=10116;

OX [1]

RN SEQUENCE FROM N.A.

RP MEDLINE=85163768; PubMed=3920534;

RA Mayo K.E., Cerelli G.M., Rosenfeld M.G., Evans R.M.;

RA "Characterization of cDNA and genomic clones encoding the precursor

RT to rat hypothalamic growth hormone-releasing factor.";

RL Nature 314:464-467(1985).

RN [2]

RP SEQUENCE FROM N.A.

RP MEDLINE=9202929; PubMed=1924334;

RA Gonzalez-Crespo S., Boronat A.;

RA "Expression of the rat growth hormone-releasing hormone gene in

RT placenta is directed by an alternative promoter.";

RL Proc. Natl. Acad. Sci. U.S.A. 88:8749-8753(1991).

RN [3]

RP SEQUENCE FROM N.A.

RP STRAIN=Sprague-Dawley; TISSUE=Testis;

RC MEDLINE=95203210; PubMed=7895659;

RA Srivastava C.H., Monts B.S., Rothrock J.K., Peredo M.J.,

RA Pescovitz O.H.;

RA "Presence of a spermatogenic-specific promoter in the rat growth

RT hormone-releasing hormone gene.";

RL Endocrinology 136:1502-1508(1995).

RN [4]

RP SEQUENCE OF 31-73.

RC TISSUE=Hypothalamus;

EX MEDLINE=83219259; PubMed=6406907;

RA Spies J., Rivier J., Vale W.;

RT "Characterization of rat hypothalamic growth hormone-releasing

RT factor.";

RL Nature 303:532-535(1993).

CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

CC adenylophypophyse to stimulate the secretion of growth hormone.

CC -!- SUSCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the glucagon family.

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CC -----

CC DR EMBL; X02319; -; NOT_ANNOTATED_CDS.

CC DR EMBL; X02335; CAA26194.1; -.

CC DR EMBL; X02330; CAA26194.1; JOINED.

CC DR EMBL; X02321; CAA26194.1; JOINED.

CC DR EMBL; X02322; CAA26194.1; JOINED.

CC DR EMBL; M73486; AAA41220.1; -.

CC DR EMBL; U10156; AAC52184.1; -.

CC DR PIR; A32731; A32731.

CC DR InterPro; IPR000532; Glucagon.

CC DR Pfam; PF00123; hormone2; 1.

CC DR SMART; SM00070; GLUCA; 1.

CC DR PROSITE; PS00260; GLUCAGON; 1.

CC KW Glucagon family; Signal; Hypothalamus.

CC FT SIGNAL 1 19

CC FT PEPTIDE 31 73 SOMATOLIBERIN.

CC SQ SEQUENCE 104 AA; 12266 MW; F9C17485742B2887 CRC64;

Query Match 73.4%; Score 146; DB 1; Length 104;

Best Local Similarity 75.7%; Pred. No. 4e-13;

Matches 28; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGSLQSLARKLLQDIMSROQGERNQEG 37

DB 31 HADAIFTSYRKVLGSLQSLARKLLQDIMSROQGERNQEG 67

RESULT 7

SLIB MOUSE

ID SLIB MOUSE STANDARD; PRT; 103 AA.

AC P160A3;

DT 01-APR-1990 (Rel. 14, Created)

DT 01-APR-1990 (Rel. 14, Last sequence update)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)

DE (Growth hormone-releasing hormone) (GHRH).

GN GHRH.

OS Mus musculus (Mouse).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.

OC NCBI_TaxID=10090;

OX [1]

RN SEQUENCE FROM N.A.

RP MEDLINE=90114172; PubMed=2514346;

RA Suhr S.T., Rahal J.O., Mayo K.E.;

RA "Mouse growth-hormone-releasing hormone: precursor structure and

RT expression in brain and placenta.";

RL Mol. Endocrinol. 3:1693-1700(1989).

RN [2]

RP SEQUENCE FROM N.A.

RP MEDLINE=90114154; PubMed=2481813;

RA Frohman M.A., Downs T.R., Chomczynski P., Frohman L.A.;

RA "Cloning and characterization of mouse growth hormone-releasing

RT hormone (GRH) complementary DNA: increased GRH messenger RNA levels

RT in the growth hormone-deficient lit/lit mouse.";

RL Mol. Endocrinol. 3:1529-1536(1989).

CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

CC adenylophypophyse to stimulate the secretion of growth hormone.

CC -!- SUSCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the glucagon family.

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CC -----

CC DR EMBL; M31654; AAA37691.1; -.

CC DR EMBL; M31658; AAA37739.1; -.

DR SMART; SM00070; GLUCA; 1.

DR PROSITE; PS00260; GLUCAGON; 1.

KW Glucagon family; Signal; Amidation; Hypothalamus.

FT SIGNAL 1 19 POTENTIAL.

FT PEPTIDE 31 74 SOMATOLIBERIN.

FT MOD_RES 74 74 AMIDATION (G-75 PROVIDE AMIDE GROUP) (BY

FT SIMILARITY).

SQ SEQUENCE 107 AA; 12298 MW; 3DEPA8D4B3F7636 CRC64;

Query Match 89.9%; Score 179; DB 1; Length 107;

Best Local Similarity 92.3%; Pred. No. 1.2e-17;

Matches 36; Conservative 2; Mismatches 1; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGSLQSLARKLLQDIMSROQGERNQEG 39

DB 31 YADAIFTSYRKVLGSLQSLARKLLQDIMSROQGERNQEG 69

RESULT 6

SLIB RAT

ID SLIB RAT STANDARD; PRT; 104 AA.

AC P099T6;

DT 01-MAR-1989 (Rel. 10, Created)

DT 01-FEB-1991 (Rel. 17, Last sequence update)

DT 15-MAR-2004 (Rel. 43, Last annotation update)

DE Somatoliberin precursor (Growth hormone-releasing factor) (GRF)

DE (Growth hormone-releasing hormone) (GHRH).

GN GHRH.

OS Rattus norvegicus (Rat).

OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.

OC NCBI_TaxID=10116;

OX [1]

RN SEQUENCE FROM N.A.

RP MEDLINE=85163768; PubMed=3920534;

RA Mayo K.E., Cerelli G.M., Rosenfeld M.G., Evans R.M.;

RA "Characterization of cDNA and genomic clones encoding the precursor

RT to rat hypothalamic growth hormone-releasing factor.";

RL Nature 314:464-467(1985).

RN [2]

RP SEQUENCE FROM N.A.

RP MEDLINE=9202929; PubMed=1924334;

RA Gonzalez-Crespo S., Boronat A.;

RA "Expression of the rat growth hormone-releasing hormone gene in

RT placenta is directed by an alternative promoter.";

RL Proc. Natl. Acad. Sci. U.S.A. 88:8749-8753(1991).

RN [3]

RP SEQUENCE FROM N.A.

RP STRAIN=Sprague-Dawley; TISSUE=Testis;

RC MEDLINE=95203210; PubMed=7895659;

RA Srivastava C.H., Monts B.S., Rothrock J.K., Peredo M.J.,

RA Pescovitz O.H.;

RA "Presence of a spermatogenic-specific promoter in the rat growth

RT hormone-releasing hormone gene.";

RL Endocrinology 136:1502-1508(1995).

RN [4]

RP SEQUENCE OF 31-73.

RC TISSUE=Hypothalamus;

EX MEDLINE=83219259; PubMed=6406907;

RA Spies J., Rivier J., Vale W.;

RT "Characterization of rat hypothalamic growth hormone-releasing

RT factor.";

RL Nature 303:532-535(1993).

CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the

CC adenylophypophyse to stimulate the secretion of growth hormone.

CC -!- SUSCELLULAR LOCATION: Secreted.

CC -!- SIMILARITY: Belongs to the glucagon family.

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DR PIR; A41410; A41410.
DR MGD; MGI:95709; Ghrh.
DR InterPro: IPR00532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Signal; Hypothalamus.
FT SIGNAL 1 19
FT PEPTIDE 31 72 SOMATOLIBERIN.
FT SEQUENCE 103 AA; 12064 MW; F3BAG870BF2CA8DC CRC64;
Query Match 55.0%; Score 111.5; DB 1; Length 103;
Best Local Similarity 60.0%; Pred. No. 2.2e-08;
Matches 24; Conservative 8; Mismatches 7; Indels 1; Gaps 1;
QY 1 YANAIFNSVRKVLGQLSARKLLQDIMSROQNGA 40
: : : : : : : : : : : : : : : : : : : : : : : : : :
Db 31 HVDAIFTNRYKLSQLYARKVIQDIMNK-QGERIQEORA 69
: : : : : : : : : : : : : : : : : : : : : : : : : :
RESULT 8
PACA_ONCNE
ID _PACA_ONCNE STANDARD; PRT; 173 AA.
AC P41585;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE Pituitary adenylate cyclase activating polypeptide (PACAP)].
OS Oncorhynchus nerka (Sockeye salmon).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=8023;
RN [1]
RP SEQUENCE FROM N.A., AND ALTERNATIVE SPLICING.
RC TISSUE=Brain;
RX MEDLINE=93345532; PubMed=8344311;
RA Parker D.B., Coe I.R., Dixon G.H., Sherwood N.M.;
RT "Two salmon neuropeptides encoded by one brain cDNA are structurally
RT related to members of the glucagon superfamily.";
RL Eur. J. Biochem. 215:439-448(1993).
CC -!- FUNCTION: Primary role of GHRH is to release GH from the
CC pituitary.
CC -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC neuromodulator.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=2;
CC Name=Long;
CC IsoId=P41585-1; Sequence=Displayed;
CC Name=Short;
CC IsoId=P41585-2; Sequence=VSP_001762, VSP_001763;
CC Note=Lacks the GHRH-like sequence;
CC -!- POLYMORPHISM: Four clones were identified that had nucleotide
CC differences.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC
CC -----
CC EMBL; X73233; CRA51705.1; ALT_SEQ.
CC PIR; S34767; S34767.
CC InterPro: IPR00532; Glucagon.
CC Pfam; PF00123; hormone2; 2.
CC PRINTS; PR00275; GLUCA; 2.
CC SMART; SM00070; GLUCA; 2.

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DR PROSITE; PS00260; GLUCAGON; 2
KW Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
KW Amidation; Alternative splicing; Polymorphism.
FT SIGNAL 1 22
FT PROPEP 23 80
FT PEPTIDE 82 126
FT PEPTIDE 129 166
FT MOD_RES 166 166
FT VARSPLIC 78 78
FT VARSPLIC 79 113
FT VARIANT 22 22
FT VARIANT 61 61
FT VARIANT 78 78
FT VARIANT 122 122
FT VARIANT 165 165
FT VARIANT 171 171
FT SEQUENCE 173 AA; 19704 MW; 2B0554F43C738F2 CRC64;
Query Match 43.7%; Score 87; DB 1; Length 173;
Best Local Similarity 50.0%; Pred. No. 8.8e-05;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;
QY 1 YANAIFNSVRKVLGQLSARKLLQDIMSROQG 32
: : : : : : : : : : : : : : : : : : : : : : : : : :
Db 82 HADGEMKAYRKALGQLSARKYLHLMKRVG 113
: : : : : : : : : : : : : : : : : : : : : : : : : :
RESULT 9
PACA_CHICK
ID _PACA_CHICK STANDARD; PRT; 175 AA.
AC P41534;
DT 01-NOV-1995 (Rel. 32, Created)
DT 15-JUL-1998 (Rel. 36, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Glucagon-family neuropeptides precursor [Contains: Growth hormone-
DE releasing factor (GRF) (Growth hormone-releasing hormone) (GHRH);
DE Pituitary adenylate cyclase activating polypeptide-27 (PACAP-27);
DE (PACAP27); Pituitary adenylate cyclase activating polypeptide-38
DE (PACAP-38) (PACAP38)].
GN ADCYAP1.
OS Gallus gallus (Chicken).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Archosauria; Aves; Neognathae; Galliformes; Phasianidae;
OC Gallus.
OX NCBI_TaxID=9031;
RN [1]
RP SEQUENCE FROM N.A.
RX MEDLINE=97174314; PubMed=9022048;
RA McRory J.E., Parker R.L., Sherwood N.M.;
RT "Expression and alternative processing of a chicken gene encoding
RT both growth hormone-releasing hormone and pituitary adenylate
RT cyclase-activating polypeptide.";
RL DNA Cell Biol. 16:95-102(1997).
RN [2]
RP SEQUENCE OF 131-168.
RA Yasuhara T., Mizuno K., Somogyvari-Vigh A., Komaki G., Arimura A.;
RT "Isolation and primary structure of chicken PACAP.";
RL Regul. Pept. 37:326-326(1992).
CC -!- FUNCTION: Primary role of GRF is to release GH from the pituitary.
CC -!- FUNCTION: PACAP plays pivotal roles as a neurotransmitter and/or a
CC neuromodulator.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- ALTERNATIVE PRODUCTS:
CC Event=Alternative splicing; Named isoforms=3;
CC Name=GRF 1-46;
CC IsoId=P41534-1; Sequence=Displayed;
CC Name=GRF 1-43;
CC IsoId=P41534-2; Sequence=VSP_001760;
CC Name=GRF 33-46;

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CC IsoIG-P41534-3; Sequence-VSP 001759;
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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CC or send an email to license@isb-sib.ch).
CC
CC EMBL; U71183; AAB51200.1; -
CC EMBL; U71184; AAB51201.1; -
CC EMBL; U71185; AAB51202.1; -
CC InterPro; IPR000532; Glucagon.
CC Pfam; PF00123; hormone2; 2.
CC PRINTS; PR00275; GLUCAGON.
CC SMART; SM00070; GLUCA; 2.
CC PROSITE; PS00260; GLUCAGON; 2.
CC Glucagon family; Hormone; Cleavage on pair of basic residues; Signal;
CC Amidation; Alternative splicing.
CC SIGNAL 1 23 POTENTIAL.
CC PROPEP 24 80 GROWTH HORMONE-RELEASING FACTOR 1-46.
CC PEPTIDE 83 128 PITUITARY ADENYLATE CYCLASE ACTIVATING
CC PEPTIDE 131 168 POLYPEPTIDE-38.
CC PEPTIDE 131 157 PITUITARY ADENYLATE CYCLASE ACTIVATING
CC PEPTIDE 131 157 POLYPEPTIDE-27.
CC MOD_RES 157 157 AMIDATION (G-158 PROVIDE AMIDE GROUP).
CC MOD_RES 168 168 AMIDATION (G-169 PROVIDE AMIDE GROUP).
CC VARSPLIC 82 114 RHADGIFSKAYRKLGQLSARKYLHSLMAKRVG -> S
CC (in isoform GRF 33-46).
CC /FTID=VSP 001759.
CC VARSPLIC 115 117 Missing (in isoform GRF 1-43).
CC /FTID=VSP 001760.
CC SEQUENCE 175 AA; 19560 MW; 0DB54995F0AA9DFB CRC64;
Query Match 43.7%; Score 87; DB 1; Length 175;
Best Local Similarity 50.0%; Pred. No. 8.9e-05;
Matches 16; Conservative 9; Mismatches 7; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKYLQDIMSRQQG 32
DB 83 HADGIFSKAYRKLGQLSARKYLHSLMAKRVG 114
RESULT 10
SLIB_CYPCA STANDARD; PRT; 45 AA.
AC P42692;
DT 01-NOV-1995 (Rel. 32, Created)
DT 01-NOV-1995 (Rel. 32, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Somatoliberin (Growth hormone-releasing factor) (GRF) (Growth
DE hormone-releasing hormone) (GHRH).
OS Cyprinus carpio (Common carp).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Cyprinus.
OX NCBI_TaxID=7962;
RN [1]
RP SEQUENCE, AND SYNTHESIS.
RC TISSUE=Hypothalamus;
RX MEDLINE=93116845; PubMed=1475012;
RA Vaughan J.M., Rivier J., Spess J., Peng C., Chang J.P., Peter R.E.,
RA Vale W.
RT "Isolation and characterization of hypothalamic growth-hormone
RT releasing factor from common carp, *Cyprinus carpio*."
RL Neuroendocrinology 56:539-549(1992).
CC -!- FUNCTION: GRF is released by the hypothalamus and acts on the
CC adenohipophyse to stimulate the secretion of growth hormone.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.

DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 1.
DR SMART; SM00070; GLUCA; 1.
DR PROSITE; PS00260; GLUCAGON; 1.
KW Glucagon family; Hypothalamus.
SQ SEQUENCE 45 AA; 4979 MW; 67C9E8A06B24AE94 CRC64;
Query Match 43.2%; Score 86; DB 1; Length 45;
Best Local Similarity 50.0%; Pred. No. 2.9e-05;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;
QY 1 YANAIFTSYRKVLGQLSARKYLQDIMSRQQG 32
DB 1 HADGMFNKAYRKALGQLSARKYLHSLMAKRVG 32
RESULT 11
PACA_MOUSE STANDARD; PRT; 175 AA.
ID PACA_MOUSE
AC O70176;
DT 16-OCT-2001 (Rel. 40, Created)
DT 16-OCT-2001 (Rel. 40, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN ADCYAP1 OR PACAP.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=129/SVJ;
RX MEDLINE=98241502; PubMed=9573339;
RA Yamamoto K., Hashimoto H., Hagiwara N., Nishino A., Fujita T.,
RA Matsuda T., Baba A.;
RT "Cloning and characterization of the mouse pituitary adenylate
RT cyclase-activating polypeptide (PACAP) gene."
RL Gene 211:63-69(1998).
RN [2]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6; TISSUE=Brain;
RX MEDLINE=22388257; PubMed=12477932;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Ustin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahey J., Helton E., Kettman M., Madan A., Rodrigues S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Griwood J., Schmutz J., Myers R.M.,
RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smalhus D.E.,
RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.,
RT "Generation and initial analysis of more than 15,000 full-length
RT human and mouse cDNA sequences."
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
CC -!- FUNCTION: Stimulates adenylate cyclase in pituitary cells.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC
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[illegible]

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Query Match          43.2%; Score 86; DB 1; Length 175;
Best Local Similarity 56.2%; Pred. No. 0.00012;
Matches 18; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

Qy      2 ANAIFTSYRKVLGQLSARKLQDIMSROOGE 33
      | : | : | | | | | | | | | | | | | |
Db      83 AHEILNEAYRKVLQLSARKYLQSVVARGAGE 114

RESULT 12
PACA_RAT ID_PACA_RAT STANDARD; PRT; 175 AA.
AC PI3589;
AT
DT 01-JAN-1990 (Rel. 13, Created)
DT 01-MAR-1992 (Rel. 21, Last sequence update)
DT 15-MAR-2004 (Rel. 43, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor (PACAP)
DE [Contains: PACAP-related peptide (PRP-48); Pituitary adenylate cyclase
DE activating polypeptide-27 (PACAP-27) (PACAP27); Pituitary adenylate
DE cyclase activating polypeptide-38 (PACAP-38) (PACAP38)].
GN ADCYAP1.
OS Rattus norvegicus (Rat).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
OX NCBI_TaxID=10116;
RN [1]
RN SEQUENCE FROM N.A.
RP
RC STRAIN=Sprague-Dawley; TISSUE=Brain;
RX MEDLINE=91097560; PubMed=2268329;
RA Ogi K., Kimura C., Onda H., Arimura A., Fujino M.;
RT "Molecular cloning and characterization of cDNA for the precursor of
RT rat pituitary adenylate cyclase activating polypeptide (PACAP).";
RL Biochem. Biophys. Res. Commun. 173:1271-1279(1990).
RN [2]
RN SEQUENCE FROM N.A.
RP
RC STRAIN=Wistar; TISSUE=Testis;
RX MEDLINE=95136947; PubMed=7835287;
RA Hurley J.D., Gardiner J.V., Jones P.M., Bloom S.R.;
RT "Cloning and molecular characterization of complementary
RT deoxyribonucleic acid corresponding to a novel form of pituitary
RT adenylate cyclase-activating polypeptide messenger ribonucleic acid
RT in the rat testis.";
RL Endocrinology 136:550-557(1995).
RN [3]
RN SEQUENCE OF 131-168.
RP

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RA Yamagami T., Ohsawa K., Nishizawa M., Inoue C., Gotoh E.,
RA Yanaiha N., Yamamoto H., Okamoto H.;
RT "Complete nucleotide sequence of human vasoactive intestinal
RT peptide/PHM-27 gene and its inducible promoter.";
RL Ann. N.Y. Acad. Sci. 527:87-102(1988).
RN [3]
RN SEQUENCE FROM N.A.
RP MEDLINE=86004065; PubMed=3899557;
RX Tsukada T., Horovitch S.J., Montminy M.R., Mandel G., Goodman R.H.;
RA "Structure of the human vasoactive intestinal polypeptide gene.";
RL DNA 4:293-300(1985).
RN [4]
RN SEQUENCE FROM N.A.
RP MEDLINE=87092456; PubMed=3025882;
RX Linder S., Barkhem T., Norberg A., Persson H., Schalling M.,
RA Hoekfelt T., Magnusson G.;
RT "Structure and expression of the gene encoding the vasoactive
RT intestinal peptide precursor.";
RL Proc. Natl. Acad. Sci. U.S.A. 84:605-609(1987).
RN [5]
RN SEQUENCE FROM N.A.
RP MEDLINE=86016352; PubMed=2995945;
RX Delanarter J.F., Buell G.N., Kawashima E., Polak J.M., Bloom S.R.;
RA "Vasoactive intestinal peptide: expression of the prohormone in
RT bacterial cells.";
RL Peptides 6:95-102(1985).
RN [6]
RN SEQUENCE FROM N.A.
RP TISSUE=Prostate;
RX MEDLINE=22388257; PubMed=12477932;
RA Strausberg R.L., Feingold E.A., Grouse L.H., Derge J.G.,
RA Klausner R.D., Collins F.S., Wagner L., Shenmen C.M., Schuler G.D.,
RA Altschul S.F., Zeeberg B., Buetow K.H., Schaefer C.F., Bhat N.K.,
RA Hopkins R.F., Jordan H., Moore T., Max S.I., Wang J., Hsieh F.,
RA Diatchenko L., Marusina K., Farmer A.A., Rubin G.M., Hong L.,
RA Stapleton M., Soares M.B., Bonaldo M.F., Casavant T.L., Scheetz T.E.,
RA Brownstein M.J., Usdin T.B., Toshiyuki S., Carninci P., Prange C.,
RA Raha S.S., Loquellano N.A., Peters G.J., Abramson R.D., Mullahy S.J.,
RA Bosak S.A., McEwan P.J., McKernan K.J., Malek J.A., Gunaratne P.H.,
RA Richards S., Worley K.C., Hale S., Garcia A.M., Gay L.J., Hulyk S.W.,
RA Villalon D.K., Muzny D.M., Sodergren E.J., Lu X., Gibbs R.A.,
RA Fahy J., Helton E., Kettman M., Madan A., Rodriguez S., Sanchez A.,
RA Whiting M., Madan A., Young A.C., Shevchenko Y., Bouffard G.G.,
RA Blakesley R.W., Touchman J.W., Green E.D., Dickson M.C.,
RA Rodriguez A.C., Grimwood J., Schmutz J., Myers R.M.,
RA Butterfield Y.S.N., Krzywinski M.I., Skalska U., Smailus D.E.,
RA Schnerch A., Schein J.E., Jones S.J.M., Marra M.A.;
RT "Generation and initial analysis of more than 15,000 full-length
RT human and mouse cDNA sequences.";
RL Proc. Natl. Acad. Sci. U.S.A. 99:16899-16903(2002).
RN [7]
RN SEQUENCE OF 8-170 FROM N.A.
RP MEDLINE=86313155; PubMed=3748844;
RX Gozes I., Bodener M., Shani Y., Fridkin M.;
RA "Structure and expression of the vasoactive intestinal peptide (VIP)
RT gene in a human tumor.";
RL Peptides 7:1-6(1986).
RN [8]
RN SEQUENCE OF 50-170 FROM N.A.
RP TISSUE=Pancratic carcinoma;
RX MEDLINE=84066682; PubMed=6139527;
RA Bloom S.R., Delanarter J.F., Kawashima E., Christofides N.D.,
RA Buell G., Polak J.M.;
RT "Diarrhoea in vipoma patients associated with cosecretion of a second
RT active peptide (peptide histidine isoleucine) explained by single
RT coding gene.";
RL Lancet 2:1163-1165(1983).
RN [9]
RN SEQUENCE OF 78-155 FROM N.A.
RP MEDLINE=87140054; PubMed=2434617;
RX Gozes I., Giladi E., Shani Y.;
RA "Vasoactive intestinal peptide gene: Putative mechanism of information
RT storage at the RNA level.";
RN J. Neurochem. 47:1136-1141(1987).
RN [10]
RN SEQUENCE OF 81-122
RX MEDLINE=88007645; PubMed=3654650;
RA Yiangou Y., di Marzo V., Spokes R.A., Panico M., Morris H.R.,
RA Bloom S.R.;
RT "Isolation, characterization, and pharmacological actions of peptide
RT histidine valine 42, a novel prepro-vasoactive intestinal peptide-
RT derived peptide";
RL J. Biol. Chem. 262:14010-14013(1987).
RN [11]
RN SEQUENCE OF 127-152.
RP TISSUE=Pheochromocytoma;
RX MEDLINE=92287083; PubMed=1318039;
RA Kitamura K., Kangawa K., Kawamoto M., Ichiki Y., Matsuo H., Eto T.;
RT "Isolation and characterization of peptides which act on rat
RT platelets, from a pheochromocytoma.";
RL Biochem. Biophys. Res. Commun. 185:134-141(1992).
RN [12]
RN STRUCTURE BY NMR OF VIP.
RX MEDLINE=91322343; PubMed=1863695;
RA Theriault Y., Boulanger Y., St Pierre S.;
RT "Structural determination of the vasoactive intestinal peptide by
RT two-dimensional H-NMR spectroscopy.";
RL Biopolymers 31:459-464(1991).
CC -!- FUNCTION: VIP causes vasodilation, lowers arterial blood pressure,
CC stimulates myocardial contractility, increases glycolysis and
CC relaxes the smooth muscle of trachea, stomach and gall bladder.
CC -!- FUNCTION: PHM and PHV also cause vasodilation.
CC -!- SUBCELLULAR LOCATION: Secreted.
CC -!- SIMILARITY: Belongs to the glucagon family.
CC -----
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CC -----
DR EMBL; L00157; AAA61289.1; -;
DR EMBL; L00154; AAA61289.1; JOINED.
DR EMBL; L00155; AAA61289.1; JOINED.
DR EMBL; L00156; AAA61289.1; JOINED.
DR EMBL; M33027; AAA69515.1; -;
DR EMBL; M11553; AAA61284.1; -;
DR EMBL; M11549; AAA61284.1; JOINED.
DR EMBL; M11550; AAA61284.1; JOINED.
DR EMBL; M11551; AAA61284.1; JOINED.
DR EMBL; M11552; AAA61284.1; JOINED.
DR EMBL; M14623; AAA61288.1; -;
DR EMBL; M14619; AAA61288.1; JOINED.
DR EMBL; M14620; AAA61288.1; JOINED.
DR EMBL; M14621; AAA61288.1; JOINED.
DR EMBL; M14622; AAA61288.1; JOINED.
DR EMBL; M36610; AAA61286.1; -;
DR EMBL; M36606; AAA61286.1; JOINED.
DR EMBL; M36607; AAA61286.1; JOINED.
DR EMBL; M36608; AAA61286.1; JOINED.
DR EMBL; M36609; AAA61286.1; JOINED.
DR EMBL; BC009794; AAH09794.1; -;
DR EMBL; M36634; AAA61287.1; -;
DR EMBL; M54930; AAA63268.1; -;
DR EMBL; M32162; AAA61285.1; -;
DR EMBL; M31645; AAA61285.1; JOINED.
DR PIR; A23296; VRHU.
DR Genew; HGNC:12693; VIP.
DR MIM; 192320; -;
DR GO; GO:0005184; F:neuropeptide hormone activity; TAS.
DR GO; GO:0007589; P:fluid secretion; TAS.
DR GO; GO:0007186; P:G-protein coupled receptor protein signalin.; TAS.
DR GO; GO:0008284; P:positive regulation of cell proliferation; TAS.
DR InterPro; IPR000532; Glucagon.

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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:44:17 ; Search time 35.5 Seconds
(without alignments)
355.513 Million cell updates/sec

Title: US-10-021-403A-1

Perfect score: 199

Sequence: 1 YANAIFTSYRKVLGQLSARKLLQDMSRQQGERNQENCA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1017041 segs, 315518202 residues

Total number of hits satisfying chosen parameters: 1017041

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Listing first 45 summaries

Database :

SPTREMBL 25.*

1: sp archaea.*

2: sp bacteria.*

3: sp fungi.*

4: sp human.*

5: sp invertebrate.*

6: sp mammal.*

7: sp mhc.*

8: sp organelle.*

9: sp phage.*

10: sp plant.*

11: sp rodent.*

12: sp virus.*

13: sp vertebrate.*

14: sp unclassified.*

15: sp virus.*

16: sp bacterioph.*

17: sp archaea.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	146	73.4	138	11	P97567
2	136	68.3	59	6	Q866F9
3	124	62.3	28	6	Q9XS89
4	112	56.3	26	6	P79406
5	94	47.2	41	6	Q9TU30
6	86	43.2	170	11	Q8BJT8
7	86	43.2	172	13	Q9DE29
8	83	41.7	173	13	Q98SP5
9	78	39.2	202	13	Q7ZYX8
10	77	38.7	89	13	Q98SP6
11	76	38.2	170	6	Q8MI77
12	74	37.2	153	11	Q7TSR4
13	74	37.2	171	11	Q9DZ27
14	70	35.2	171	13	Q9PUF8
15	68	34.2	427	10	Q94CE6
16	68	34.2	432	10	Q9MTX3

17	68	34.2	758	10	Q9C838
18	61	30.7	175	13	Q90XZ4
19	60	30.2	531	5	Q9VSV1
20	59	29.6	138	13	Q98SP4
21	59	29.6	502	10	Q8GYE3
22	59	29.6	537	10	Q9C7X2
23	58.5	29.4	424	16	Q8DWW8
24	58	29.1	175	13	Q98TU3
25	57	28.6	275	4	Q8NCL9
26	57	28.6	319	11	Q9JLS1
27	57	28.6	620	5	Q9UIU0
28	56.5	28.4	423	16	Q9A1H6
29	56.5	28.4	423	16	Q8P2N5
30	56.5	28.4	423	16	Q8K8N2
31	56.5	28.4	525	3	Q94142
32	55.5	27.9	699	11	Q7TP87
33	55	27.6	28	13	Q9PRN8
34	55	27.6	675	16	Q7VDH7
35	55	27.6	1036	13	Q9W603
36	55	27.6	1040	5	Q9N5D9
37	54.5	27.4	424	16	Q8E3E2
38	54.5	27.4	424	16	Q8DXS2
39	54	27.1	38	5	Q8IU39
40	54	27.1	38	5	Q8IU38
41	54	27.1	38	5	Q8IU37
42	54	27.1	38	5	Q8IU36
43	54	27.1	38	13	Q8AYP5
44	54	27.1	38	13	Q8AYP4
45	54	27.1	81	15	Q98ZY1

ALIGNMENTS

RESULT 1

P97567 ID P97567 PRELIMINARY; PRT; 138 AA.
 AC P97567;
 DT 01-MAY-1997 (TREMBLrel. 03, Created)
 DT 01-MAY-1997 (TREMBLrel. 03, Last sequence update)
 DT 01-JUN-2003 (TREMBLrel. 24, Last annotation update)
 DE Pre-growth hormone releasing factor.
 GN GHRH.
 OS Rattus norvegicus (Rat).
 OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Rattus.
 OX NCBI_TaxID=10116;
 RN [1]_TaxID=10116;
 RC SEQUENCE FROM N.A.
 RP STRAIN=Sprague-Dawley; TISSUE=Placenta;
 RX MEDLINE=97188624; PubMed=9037209;
 RA Perez-Riba M., Gonzalez-Crespo S., Boronat A.;
 RT "Differential splicing of the growth hormone-releasing hormone gene in
 rat placenta generates a novel pre-proGHRH mRNA that encodes a
 different C-terminal flanking peptide.";
 RL FEBS Lett. 402:273-276(1997).
 DR EMBL; U41183; AAC53041.1;
 DR GO; GO:0005576; C:extracellular; IEA.
 DR GO; GO:0005179; F:hormone activity; IEA.
 DR InterPro; IPR000532; Glucagon.
 DR Pfam; PF00123; hormone2; 1.
 DR SMART; SM00070; GLUCA; 1.
 DR PROSITE; PS00260; GLUCAGON; 1.
 SQ SEQUENCE 138 AA; 16226 MW; E9FD1336E48F4350 CRC64;

Query Match 73.4%; Score 146; DB 11; Length 138;
 Best Local Similarity 75.7%; Pred. No. 2.3e-12;
 Matches 28; Conservative 7; Mismatches 2; Indels 0; Gaps 0;

Qy 1 YANAIFTSYRKVLGQLSARKLLQDMSRQQGERNQ 37

Db 31 HADAIFTSYRKVLGQLSARKLLQDMSRQQGERNQ 67

RESULT 2					
ID	Q866F9	PRELIMINARY;	PRT;	59 AA.	
AC	Q866F9;				
DT	01-JUN-2003	(TREMBLrel. 24, Created)			
DT	01-JUN-2003	(TREMBLrel. 24, Last sequence update)			
DT	01-OCT-2003	(TREMBLrel. 25, Last annotation update)			
DE	Growth hormone releasing hormone (Fragment).				
OS	Bos mutus grunniens [Yak].				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Cetartiodactyla; Ruminantia; Pecora; Bovidae;				
OC	Bovidae; Bovinae; Bos.				
NCBI_TaxID=30521;					
[1]					
RN	SEQUENCE FROM N.A.				
RP	SEQUENCE=Blood;				
RC	TISSUE=Blood;				
RA	Ou J.T., Zhong J.C., Chen Z.H., Wu H., Rao K.Q.;				
RT	"T-A cloning and sequencing analysis on growth hormone releasing				
RT	hormone gene of Yak."				
RRL	Submitted (DEC-2002) to the EMBL/GenBank/DDBJ databases.				
DR	EMBL; AY208909; AAC26310.1; -				
DR	GO; GO:0005576; C:extracellular; IEA.				
DR	GO; GO:0005179; F:hormone activity; IEA.				
DR	InterPro; IPR000532; Glucagon.				
DR	Pfam; PF00123; hormone2; 1.				
DR	SMART; SM00070; GLUCA; 1.				
DR	PROSITE; PS00260; GLUCAGON; 1.				
FT	NON TER 59				
SQ	SEQUENCE 59 AA; 6705 MW; D5CA5663B74135A5 CRC64;				
Query Match 68.3%; Score 136; DB 6; Length 59;					
Best Local Similarity 96.6%; Pred. No. 2.2e-11;					
Matches 28; Conservative 1; Mismatches 0; Indels 0; Gaps 0;					
QY	1 YANAIFTNSYRKVLGQLSARKLLQDIMSR 29				
Dd					
Dd	31 YADAIFTNSYRKVLGQLSARKLLQDIMSR 59				
RESULT 3					
ID	Q9XS89	PRELIMINARY;	PRT;	28 AA.	
AC	Q9XS89;				
DT	01-NOV-1999	(TREMBLrel. 12, Created)			
DT	01-NOV-1999	(TREMBLrel. 12, Last sequence update)			
DT	01-JUN-2003	(TREMBLrel. 24, Last annotation update)			
DE	Growth hormone-releasing factor (Fragment).				
GN	GHRH.				
OS	Equus caballus (Horse).				
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;				
OC	Mammalia; Eutheria; Perissodactyla; Equidae; Equus.				
[1]					
RN	SEQUENCE FROM N.A.				
RP	MEDLINE=99160468; PubMed=10051323;				
RX	Castrano A.R., Pomp D., Murray J.D., Bowling A.T.;				
RA	"Comparative mapping of 18 equine type I genes assigned by somatic				
RT	cell hybrid analysis."				
RL	Mamm. Genome 10:271-276(1999).				
DR	EMBL; AF097587; AAD25990.1; -				
DR	GO; GO:0005576; C:extracellular; IEA.				
DR	GO; GO:0005179; F:hormone activity; IEA.				
DR	InterPro; IPR000532; Glucagon.				
DR	Pfam; PF00123; hormone2; 1.				
DR	SMART; SM00070; GLUCA; 1.				
FT	NON TER 1				
FT	NON TER 28				
SQ	SEQUENCE 28 AA; 3223 MW; D988D32A3C8FC531 CRC64;				
Query Match 62.3%; Score 124; DB 6; Length 28;					
Best Local Similarity 89.3%; Pred. No. 4.7e-10;					

```
Matches 19; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 YANAIFTSYRKVLGQLSAR 20
DB 21 YADAIFTSYRKVLGQLSAR 40

RESULT 6
Q8BUT8 PRELIMINARY; PRT; 170 AA.
ID Q8BUT8
AC Q8BUT8
DT 01-MAR-2003 (TrEMBLrel. 23, Created)
DT 01-MAR-2003 (TrEMBLrel. 23, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Pituitary adenylate cyclase activating polypeptide precursor.
OS Mus musculus (Mouse).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX NCBI_TaxID=10090;
RN [1]
RP SEQUENCE FROM N.A.
RC STRAIN=C57BL/6J; TISSUE=Hypothalamus;
RX MEDLINE=22354683; PubMed=12466851;
RA The FANTOM Consortium,
RA the RIKEN Genome Exploration Research Group Phase I & II Team;
RT "Analysis of the mouse transcriptome based on functional annotation of
RT 60,770 full-length cDNAs.";
RL Nature 420:563-573 (2002).
DR EMBL; AK079530; BAC37673.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 1.
SQ SEQUENCE 170 AA; 18764 MW; C6B8C2C2C8860852 CRC64;

Query Match 43.2%; Score 86; DB 11; Length 170;
Best Local Similarity 56.2%; Pred. No. 0.0068;
Matches 18; Conservative 5; Mismatches 9; Indels 0; Gaps 0;

QY 2 ANAIFTSYRKVLGQLSARKLLQDIMSQQE 33
DB 83 AHEILNEAYRKVLQDLSARKYLQSVVARGAGE 114

RESULT 7
Q9DE29 PRELIMINARY; PRT; 172 AA.
ID Q9DE29
AC Q9DE29
DT 01-MAR-2001 (TrEMBLrel. 16, Created)
DT 01-MAR-2001 (TrEMBLrel. 16, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE activating polypeptide.
GN ADCYAP1.
OS Brachydanio rerio (Zebrafish) (Danio rerio).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Ostariophysi; Cypriniformes;
OC Cyprinidae; Danio.
OX NCBI_TaxID=7955;
RN [1]
RP SEQUENCE FROM N.A.
RA Fradinger E.A.; Sherwood N.M.;
RT "Characterization of the gene encoding both growth hormone-releasing
RT hormone (GRF) and pituitary adenylate cyclase-activating polypeptide
RT (PACAP) in the zebrafish."
RL Submitted (DEC-1999) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF217251; AAG36782.1; -.
DR ZFIN; ZDB-GENE-020809-4; adcyap1.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
```

```
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
FT CHAIN 81 125 GROWTH HORMONE-RELEASING HORMONE.
FT CHAIN 128 165 PITUITARY ADENYLATE CYCLASE-ACTIVATING
FT POLYPEPTIDE.
SQ SEQUENCE 172 AA; 19558 MW; 458117F0042E36DD CRC64;
```

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Query Match 43.2%; Score 86; DB 13; Length 172;
Best Local Similarity 50.0%; Pred. No. 0.0068;
Matches 16; Conservative 8; Mismatches 8; Indels 0; Gaps 0;
```

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QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQG 32
DB 81 HADGMFNKAYRKALGQLSARKYLHTLMKRVG 112
```

```
RESULT 8
Q98SP5 PRELIMINARY; PRT; 173 AA.
ID Q98SP5
AC Q98SP5
DT 01-JUN-2001 (TrEMBLrel. 17, Created)
DT 01-JUN-2001 (TrEMBLrel. 17, Last sequence update)
DT 01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE Growth hormone-releasing hormone/pituitary adenylate cyclase-
DE activating polypeptide.
OS Oncorhynchus mykiss (Rainbow trout) (Salmo gairdneri).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Actinopterygii; Neopterygii; Teleostei; Euteleostei;
OC Protacanthopterygii; Salmoniformes; Salmonidae; Oncorhynchus.
OX NCBI_TaxID=8022;
RN [1]
RP SEQUENCE FROM N.A.
RA Krueckl S.L.; Sherwood N.M.;
RT "Temporal expression of grf/pacap during rainbow trout development.";
RL Submitted (JAN-2001) to the EMBL/GenBank/DBJ databases.
DR EMBL; AF343976; AAK28557.1; -.
DR GO; GO:0005576; C:extracellular; IEA.
DR GO; GO:0005179; F:hormone activity; IEA.
DR InterPro; IPR000532; Glucagon.
DR Pfam; PF00123; hormone2; 2.
DR PRINTS; PR00275; GLUCAGON.
DR SMART; SM00070; GLUCA; 2.
DR PROSITE; PS00260; GLUCAGON; 2.
SQ SEQUENCE 173 AA; 19783 MW; 21D1A06A9C47F780 CRC64;
```

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Query Match 41.7%; Score 83; DB 13; Length 173;
Best Local Similarity 50.0%; Pred. No. 0.0018;
Matches 15; Conservative 8; Mismatches 7; Indels 0; Gaps 0;
```

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QY 1 YANAIFTSYRKVLGQLSARKLLQDIMSQQ 30
DB 82 HADGMFNKAYRKALGQLSARKYLHTLMKRV 111
```

```
RESULT 9
Q7ZYG8 PRELIMINARY; PRT; 202 AA.
ID Q7ZYG8
AC Q7ZYG8
DT 01-JUN-2003 (TrEMBLrel. 24, Created)
DT 01-JUN-2003 (TrEMBLrel. 24, Last sequence update)
DT 01-OCT-2003 (TrEMBLrel. 25, Last annotation update)
DE Hypothetical protein.
OS Xenopus laevis (African clawed frog).
OC Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC Amphibia; Batrachia; Anura; Mesobatrachia; Pipidae; Pipidae;
OC Xenopodinae; Xenopus.
OX NCBI_TaxID=8355;
RN [1]
RP SEQUENCE FROM N.A.
RC TISSUE=Embryo;
```

OS Bos taurus (Bovine).
 OC Eukaryota; Metazoa;
 OC Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Chordata; Craniata; Vertebrata; Euteleostomi;
 OC Cetartiodactyla; Ruminantia; Pecora; Bovidae;
 OC Mammalia; Eutheria.

DE	Vasoactive intestinal polypeptide.
GN	VIP.
OS	Mus musculus (Mouse).
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus.
OX	NCBI_TaxID=10090;
[1]	
RN	SEQUENCE FROM N.A.
RC	STRAIN=C57BL/6J; TISSUE=Cecum;
FX	MEDLINE=21085660; PubMed=11217851;
RA	Kawai J., Shinagawa A., Shibata K., Yoshino M., Itoh M., Ishii Y.,
RA	Arakawa T., Hara A., Fukunishi Y., Konno H., Adachi J., Fukuda S.,
RA	Aizawa K., Izawa M., Nishi K., Kiyoisawa H., Kondo S., Yamanaka I.,
RA	Saito T., Okazaki Y., Gojibori T., Bono H., Kasukawa T., Saito R.,
RA	Kadota K., Matsuda H.A., Ashburner M., Batalov S., Casavant T.,
RA	Fleischmann W., Gaasterland T., Gisi C., King B., Kochiwa H.,
RA	Kiehl P., Lewis S., Matsuo Y., Nikolaio I., Pesole G., Quackenbush J.,
RA	Schrim L.M., Scaulli F., Suzuki R., Tomita M., Wagner L., Washio T.,
RA	Sakai K., Okido T., Furuno M., Aono H., Baldarelli R., Barsh G.,
RA	Blake J., Boffelli D., Bojunga N., Carninci P., de Bonaldo M.F.,
RA	Brownstein M.J., Bult C., Fletcher C., Fujita M., Gariboldi M.,
RA	Grunstich S., Hill D., Hofmann C., Hume D.A., Kamya M., Lee N.H.,
RA	Lyons P., Marchionni L., Mashima J., Mazzarelli J., Mombaerts P.,
RA	Nordone P., King B., Ringwald M., Rodriguez I., Sakamoto N.,
RA	Sasaki H., Sato K., Schoenbach C., Seya T., Shibata Y., Storch K.-F.,
RA	Suzuki H., Toyooka K., Wang K.H., Weitz C., Whittaker C., Wilming L.,
RA	Wynshaw-Boris A., Yoshida K., Hasegawa Y., Kawaji H., Kohtsuki S.,
RA	Hayashizaki Y.;
RT	"Functional annotation of a full-length mouse cDNA collection.";
RL	Nature 409:685-690(2001).
DR	EMBL; AK018599; BAB31301.1; -.
DR	MGI; 98933; Vip.
DR	GO; GO:0005576; C:extracellular; IEA.
DR	GO; GO:0005179; F:hormone activity; IEA.
DR	InterPro; IPR000532; Glucagon.
DR	Pfam; PF00123; hormone2; 2.
DR	PRINTS; PR00275; GLUCAGON.
DR	SMART; SM00070; GLUCA; 2.
DR	PROSITE; PS00260; GLUCAGON; 2.
SQ	SEQUENCE 171 AA; 19135 MW; 134A434DBDF1254 CRC64;
Query Match	37.2%; Score 74; DB 11; Length 171;
Best Local Similarity	36.7%; Pred. No. 0.032;
Matches 11; Conservative 13; Mismatches 6; Indels 0; Gaps	
QY	1 YANAIFTSVRKVLGQLSARKLLQDIMSRQ 30
Db	82 HDAGVFTSDYSRLGGQSACKYLESLIGKR 111
RESULT 14	
ID	Q9PUF8 PRELIMINARY; PRT; 171 AA.
AC	Q9PUF8;
DT	01-MAY-2000 (TrEMBLrel. 13, Created)
DT	01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
DT	01-JUN-2003 (TrEMBLrel. 24, Last annotation update)
DE	Pituitary adenylate cyclase-activating peptide.
GN	PACAP.
OS	Xenopus laevis (African clawed frog).
OC	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
OC	Amphibia; Batrachia; Anura; Mesobatrachia; Pipoidae; Pipidae;
OC	Xenopodinae; Xenopus.
OX	NCBI_TaxID=8355;
[1]	
RN	SEQUENCE FROM N.A.
RC	MEDLINE=20419093; PubMed=10965909;
RA	Hu Z., Lelievre V., Tam J., Cheng J.W., Fuenzalida G., Zhou X.,
RA	Waschek J.A.;
RT	"Molecular cloning of growth hormone-releasing hormone/pituitary
RT	adenylyl cyclase-activating polypeptide in the frog Xenopus laevis:
RT	Brain distribution and regulation after castration.";
RL	Endocrinology 141:3366-3376(2000).

us-10-021-403a-1.rspt

Mon Jul 19 13:55:15 2004

Search completed: July 12, 2004, 20:51:52
Job time : 36.5 secs

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OM protein - protein search, using sw model

Run on: July 12, 2004, 20:41:06 ; Search time 50.5 Seconds
(without alignments)
223.800 Million cell updates/sec

Title: US-10-021-403A-8

Perfect score: 198

Sequence: 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQQGNERQQA 40

Scoring table: BLOSUM62

Gapop 10.0 , Gapext 0.5

Searched: 1586107 seqs, 282547505 residues

Total number of hits satisfying chosen parameters: 1586107

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

Database : A_Geneseq_29Jan04: *
1: geneseqp1980s: *
2: geneseqp1990s: *
3: geneseqp2000s: *
4: geneseqp2001s: *
5: geneseqp2002s: *
6: geneseqp2003as: *
7: geneseqp2003bs: *
8: geneseqp2004s: *

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	DB ID	Description
1	198	100.0	40	4	AAB69173 Porcine m
2	198	100.0	40	5	ABB78057 Amino aci
3	198	100.0	40	6	AAE35252 Porcine g
4	198	100.0	40	6	AAO30850 Growth ho
5	198	100.0	40	6	AAO29860 Growth ho
6	198	100.0	40	7	ABR84637 Growth ho
7	198	100.0	71	6	AAE35274 Porcine p
8	192	97.0	40	6	AAO30852 Growth ho
9	192	97.0	40	6	AAO29862 Growth ho
10	192	97.0	40	7	ABR84639 Growth ho
11	191	96.5	40	6	AAO30851 Growth ho
12	191	96.5	40	6	AAO29861 Growth ho
13	191	96.5	40	7	ABR84638 Growth ho
14	188	94.9	40	6	AAO30853 Porcine g
15	188	94.9	40	6	AAO29863 Porcine g
16	188	94.9	40	7	ABR84640 Porcine g
17	184	92.9	78	2	AAO14656 Specific
18	184	92.9	78	2	AAO14655 Specific
19	184	92.9	79	2	AAO14651 Specific
20	184	92.9	89	2	AAO14657 Specific
21	183	92.4	40	2	AAO29522 Specific
22	182	91.9	40	2	AAO29526 [His 1, V
23	182	91.9	44	1	AAO50142 Sequence
24	182	91.9	44	1	AAO71497 Growth ho
25	182	91.9	44	2	AAO24177 Caprine g

26	182	91.9	44	2	AAO27773 Mature bG
27	182	91.9	44	2	AAO24361 Sequence
28	182	91.9	44	2	AAO29417 Growth ho
29	182	91.9	44	2	AAO16378 Synthetic
30	182	91.9	44	4	AAO90938 Growth ho
31	182	91.9	78	2	AAO14659 Specific
32	182	91.9	78	2	AAO14658 Specific
33	182	91.9	79	2	AAO14652 Specific
34	182	91.9	106	2	AAO27774 Precursor
35	181	91.4	40	2	AAO25083 BGRF prod
36	181	91.4	44	1	AAO50143 Sequence
37	181	91.4	44	1	AAO71498 Growth ho
38	181	91.4	44	2	AAO24178 Ovine gro
39	181	91.4	44	2	AAO29418 Growth ho
40	181	91.4	44	4	AAO90951 Growth ho
41	180	90.9	40	2	AAO20525 [His 1, L
42	179	90.4	40	2	AAO24391 Sequence
43	177	89.4	40	2	AAO24169 Growth ho
44	177	89.4	40	4	AAO69172 Porcine G
45	177	89.4	40	5	ABB78057 Amino aci

ALIGNMENTS

RESULT 1
AAB69173
ID AAB69173 standard; peptide; 40 AA.
XX
AC AAB69173;
XX
DT 26-APR-2001 (first entry)
XX
DE Porcine mutant GHRH analogue HV-GHRH.
XX
KW Human; porcine; growth hormone releasing hormone; GHRH; mutagenesis;
KW vulnary; anti-HIV; growth performance; wasting; burn; trauma; AIDS;
KW acquired immunodeficiency syndrome; consumption disease; growth hormone;
KW enhancing growth.
XX
OS Sus scrofa.
OS Synthetic.
XX
PN WO200106988-A2.
XX
PD 01-FEB-2001.
XX
PF 24-JUL-2000; 2000WO-US020127.
XX
PR 26-JUL-1999; 99US-0145624P.
XX
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Schwartz RJ, Draghia-Akli R;
XX
DR WPI; 2001-168489/17.
XX
PT New growth hormone release hormone analog for treating growth hormone-related deficiencies, improving growth performance and stimulating the production of growth hormone in an animal.
XX
PS Example 1; Fig 1A; 56pp; English.
XX
CC The present invention describes a growth hormone-releasing hormone (GHRH) analogue (I). Also described are: (1) a pharmaceutical composition (PC) for stimulating the release of growth hormone (GH) in animals, comprising (I); (2) a nucleotide sequence (II) encoding (I) as a composition of matter; (3) a vector (III) comprising a promoter (II) and a 3', untranslated region operatively linked for functional expression; (4) increasing GH, treating a GH-related deficiency disease associated with the GH pathway, improving growth performance, treating wasting symptoms, and enhancing growth, in an animal comprising introducing (III) into the animal; (5) increasing the efficiency in an animal comprising introducing

(III) into the animal; and (6) stimulating production of GH in an animal at a level greater than that associated with normal growth comprising introducing (III) into the animal. (I) has vulnary and anti-HIV activity, and can be used in gene therapy. The vector (III) comprising (I) is useful for increasing growth hormone (GH), treating GH-related deficiency disease associated with a GH pathway as a result of change in genetic material, for improving growth performance, increasing the efficiency of an animal, treating wasting symptoms associated with burns, trauma, acquired immunodeficiency syndrome (AIDS) or other consumption diseases, stimulating growth hormone in an animal at a level greater than that associated with normal growth, and for enhancing growth, in an animal e.g. human, pet animals, food animals and work animals. The present sequence represents a mutant porcine GHRH analogue designated HV-GHRH, which is used in an example from the present invention

Sequence 40 AA;
Query Match 100.0%; Score 198; DB 4; Length 40;
Best Local Similarity 100.0%; Pred. No. 4.1e-18;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40
|||||
Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40

RESULT 2
ABB78058
ID ABB78058 standard; protein; 40 AA.

AC ABB78058;
XX 05-NOV-2002 (first entry)
DT Amino acid sequence of pig growth hormone releasing hormone analogue.
DE
XX Pig; growth hormone releasing hormone; GHRH; growth rate; lean body mass;
KW Insulin-like Growth Factor-I; IGF-I; milk production; feed efficiency;
KW somatotroph; growth-related disorder; hypopituitary dwarfism; hormone;
KW meat production; egg production.

XX Synthetic.
OS Sus sp.
XX WO200261037-A2.
XX 08-AUG-2002.
XX 12-DEC-2001; 2001WO-US048726.
XX 12-DEC-2000; 2000US-0255021P.

XX (BAYU) BAYLOR COLLEGE MEDICINE.
PA (ADVI-) ADVISYS.
XX Schwartz RJ, Carpenter RH, Draghia-Akli R, Kern DR, Smith RG;
PI WPI; 2002-619237/66.
XX Improving or enhancing growth, lean body mass, milk production, feed
PT efficiency or Insulin-like Growth Factor-I levels, comprises introducing
PT a vector encoding a growth hormone releasing hormone into an animal
PT before or during gestation.

XX Claim 5; Page 109; 113pp; English.
PS The present sequence represents a growth hormone releasing hormone (GHRH)
CC analogue. Nucleic acids encoding GHRH are used in the method of the
CC invention. The specification describes a method for improving or
CC enhancing characteristics e.g. growth, lean body mass. Insulin-like
CC Growth Factor (IGF)-I levels, growth rate and milk production in an
CC offspring, and for delaying birth of an offspring. The method comprises
CC introducing a vector, encoding GHRH, into cells of the female animal

CC prior to or during gestation of the offspring under conditions where the
CC nucleotide sequence is expressed. The method is useful of improving or
CC enhancing animal growth, for increasing growth hormone, lean body mass,
CC IGF-I levels, feed efficiency, growth rate, ratio of somatotrophs to
CC other hormone-producing cells in a pituitary gland, and milk production
CC in an offspring, and for delaying birth of an offspring. GHRH nucleic
CC acids and vectors are used for diagnostic purposes in clinical medicine,
CC both human and veterinary, e.g. in treating growth-related disorders such
CC as hypopituitary dwarfism resulting from abnormalities in growth hormone
CC production, and in stimulating the growth and enhancing feed conversion
CC efficiency of animals raised for meat, milk and egg production
XX Sequence 40 AA;

Query Match 100.0%; Score 198; DB 5; Length 40;
Best Local Similarity 100.0%; Pred. No. 4.1e-18;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40
|||||
Db 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40

RESULT 3
AAE35252
ID AAE35252 standard; protein; 40 AA.

XX AAE35252;
AC 28-MAY-2003 (first entry)
DT Porcine growth hormone releasing hormone (GHRH) variant protein.
XX Growth hormone releasing hormone; GHRH; insulin-like froth factor-I;
KW IGF-I; osteopathic; acquired immune deficiency syndrome; AIDS; cancer;
KW post-surgery; growth hormone-related deficiency; transgene; bone loss;
KW burn; post-fracture; genetic disease; gene therapy; porcine; variant;
KW mutant; mutein.

XX Sus scrofa.
OS Synthetic.
XX WO200297099-A1.
XX 05-DEC-2002.
XX 30-MAY-2001; 2001WO-US017573.
XX 29-MAY-2001; 2001US-0294316P.

XX (VALE-) VALENTIS INC.
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX Nordstrom JL, Draghia-Akli R;
PI WPI; 2003-140478/13.
XX Novel inducible growth hormone releasing hormone expression system in
PT which expression of gene encoding GHRH that induces production of insulin
PT -like froth factor-I in vivo, is not observed in absence of ligand.
XX Disclosure; Fig 20; 45pp; English.

XX The invention relates to an inducible growth hormone releasing hormone
CC (GHRH) expression system in which expression of gene encoding GHRH that
CC induces production of insulin-like froth factor-I (IGF-1) in vivo, is not
CC observed in absence of ligand. The invention is useful for preparing a
CC pharmaceutical composition for indications such as increasing weight,
CC increasing lean body mass, decreasing fat mass, conversion to anabolism
CC for a catabolic state associated with wasting, and increasing bone area,
CC content and density. It is useful for regulated GHRH expression in vivo,
CC for use in the indications, where the wasting is associated with cancer,
CC acquired immune deficiency syndrome (AIDS), burns, or post-surgery. It is

CC also useful for treating the growth hormone-related deficiencies
 CC associated with the growth hormone pathway, treating growth hormone-
 CC related deficiencies associated with genetic disease, and to prevent or
 CC treat bone loss, as in elderly, or post-fracture. It is also applied in
 CC vivo to effect expression of a transgene for gene therapy purposes. The
 CC present sequence is porcine GHRH variant protein used in the invention
 XX
 SQ Sequence 40 AA;
 Query Match 100.0%; Score 198; DB 6; Length 40;
 Best Local Similarity 100.0%; Pred. No. 4.1e-18;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQGGERNQEQGA 40
 Db 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQGGERNQEQGA 40
 RESULT 4
 AAO30850
 ID AAO30850 standard; protein; 40 AA.
 XX
 AC AAO30850;
 XX
 DT 22-SEP-2003 (first entry)
 XX
 DE Growth hormone releasing hormone (GHRH) mutant protein, HV-GHRH.
 XX
 KW Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
 KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
 KW lymphoma; weight loss; lymphopenia; appetite stimulant; anorectic;
 KW growth hormone releasing hormone; GHRH; mutant; mutein.
 XX
 OS Unidentified.
 XX
 FH Key Location/Qualifiers
 FT Misc-difference 1 /note= "Wild-type Tyr is substituted with His"
 FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
 XX
 FN WO2003049700-A2.
 XX
 PD 19-JUN-2003.
 XX
 PF 10-DEC-2002; 2002WO-US039509.
 XX
 PR 11-DEC-2001; 2001US-0339610P.
 XX
 PA (ADVI-) ADVISYS INC.
 PA (BAYU) BAYLOR COLLEGE MEDICINE.
 XX
 PI Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
 PI Hahn K, Brenner MK;
 XX
 DR WPI; 2003-558968/52.
 XX
 XX Treating anemia, immune dysfunction, tumor, increasing total red blood
 PT cell mass, reversing wasting or abnormal weight loss in subject, by
 PT administering nucleic acid construct encoding growth-hormone-releasing-
 PT hormone.
 XX
 PS Claim 13; Fig 1; 212pp; English.
 XX
 CC The invention relates to compositions and methods for plasmid-mediated
 CC supplementation. The method is useful for treating anaemia, tumour (such
 CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune

CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
 CC kidney failure, for preventing the development of metastatic tumour, for
 CC increasing total red blood cell mass, for reversing wasting, abnormal
 CC weight loss or suppression of lymphopoiesis, in a subject, or for
 CC increasing weight gain in a chronically ill subject or, or for extending
 CC life expectancy for a chronically ill subject. The present sequence is a
 CC growth hormone releasing hormone (GHRH) mutant protein. This sequence is
 CC used to illustrate the method of the invention
 XX
 SQ Sequence 40 AA;
 Query Match 100.0%; Score 198; DB 6; Length 40;
 Best Local Similarity 100.0%; Pred. No. 4.1e-18;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQGGERNQEQGA 40
 Db 1 HVDAIFTNSYRKVLQSLARKLLQDILNRQGGERNQEQGA 40

RESULT 5
 AAO29860
 ID AAO29860 standard; protein; 40 AA.
 XX
 AC AAO29860;
 XX
 DT 27-AUG-2003 (first entry)
 XX
 DE Growth hormone releasing hormone (GHRH) mutant protein, HV-GHRH.
 XX
 KW Growth hormone releasing hormone; GHRH; lean body mass; bone density;
 KW bone healing; gene therapy; anorectic; osteopathic; mutant; mutein.
 XX
 OS Unidentified.
 XX
 FH Key Location/Qualifiers
 FT Misc-difference 1 /note= "Wild-type Tyr is substituted with His"
 FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
 XX
 FN WO2003038112-A2.
 XX
 PD 08-MAY-2003.
 XX
 PF 25-OCT-2002; 2002WO-US034275.
 XX
 PR 26-OCT-2001; 2001US-0357808P.
 XX
 PA (BAYU) BAYLOR COLLEGE MEDICINE.
 PA Draghia-Akli R, Schwartz RJ;
 PI WPI; 2003-493212/46.
 XX
 DR Decreasing body fat proportion, increasing lean body mass, bone density
 XX or bone healing rate by delivering into cells of the subject a nucleic
 PT acid expression construct that encodes a growth-hormone-releasing-hormone
 PT (GHRH).
 XX
 PS Claim 167; Fig 1; 165pp; English.
 XX
 CC The invention relates to a method for decreasing body fat proportion,
 CC increasing lean body mass, bone density or bone healing rate in a subject
 CC which involves delivering a nucleic acid expression construct that
 CC encodes a growth hormone releasing hormone (GHRH) or its functional
 CC biological equivalent into cells of the subject. The method is useful for

CC decreasing body fat proportion, for increasing lean body mass, bone
CC density or bone healing rate, or for altering lean body mass in a
CC subject. It is used in gene therapy. The present sequence is GHRH mutant
CC protein. This sequence is used to illustrate the method of the invention
XX
SQ Sequence 40 AA;
Query Match 100.0%; Score 198; DB 6; Length 40;
Best Local Similarity 100.0%; Pred. No. 4.1e-18;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
DB 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
RESULT 6
ABR84637
AC ABR84637;
XX
XX
XX 18-DEC-2003 (first entry)
DE Growth hormone releasing hormone mutant SEQ ID NO: 1.
XX
XX Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
KW intergenerational growth promotion; pituitary gland; mutein; mutant;
KW hypopituitary dwarfism.
XX
XX Unidentified.
OS Synthetic.
XX
XX
XX Key Location/Qualifiers
FH Misc-difference 1 /note= "wild-type Tyr substituted by His"
FT Misc-difference 2 /note= "wild-type Ala substituted by Val"
FT Misc-difference 15 /note= "wild-type Gly substituted by Ala"
FT Misc-difference 27 /note= "wild-type Met substituted by Leu"
FT Misc-difference 28 /note= "wild-type Ser substituted by Asn"
XX
XX WO2003066825-A2.
XX
XX 14-AUG-2003.
XX
XX 06-FEB-2003; 2003WO-US003640.
XX
XX 07-FEB-2002; 2002US-0355566P.
XX
XX (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Khan A;
PI
XX WPI; 2003-731498/69.
XX
XX Changing the pituitary lineage in an offspring from a female subject
PT given a nucleic acid expression construct that encodes GHRH, useful in
PT treating growth deficiency disorders such as hypopituitary dwarfism.
XX
XX Disclosure; Page 70; Opp; English.
XX
XX The present invention relates to a method of changing the pituitary
CC lineage in an offspring from a female subject. This comprises delivering
CC a nucleic acid expression construct into cells of the female subject,
CC where the delivery is completed prior to or during a gestation period of
CC the offspring and the nucleic acid expression construct comprises a
CC promoter, a nucleotide sequence and a 3' untranslated region, and
CC delivery is completed under conditions where expression of the nucleotide
CC sequence results in the changing of the pituitary lineage in the

CC offspring. The promoter in the method cited comprises a myogenic promoter
CC and the nucleic acid expression construct encodes a growth-hormone-
CC releasing-hormone (GHRH) or its functional biological equivalent. The
CC methods and compositions of the present invention are useful for altering
CC pituitary development and hormone secretion (prolactin) in the offspring
CC of a female subject given a nucleic acid expression construct that
CC encodes GHRH. They can specifically be useful in growth deficiency
CC disorders such as hypopituitary dwarfism, and where milk production and
CC egg production stimulation is needed particularly in animal breeding
CC purposes. The present sequence is a mutated version of a GHRH protein
XX
SQ Sequence 40 AA;
Query Match 100.0%; Score 198; DB 7; Length 40;
Best Local Similarity 100.0%; Pred. No. 4.1e-18;
Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
DB 1 HVDAIFTNSYRKVLAQLSARKLLQDILNRQOGERNOEQGA 40
RESULT 7
AAE35274
ID AAE35274 standard; protein; 71 AA.
XX
XX AAE35274;
XX
XX 28-MAY-2003 (first entry)
DT
DE Porcine pre-pro growth hormone releasing hormone (GHRH).
XX
XX Growth hormone releasing hormone; GHRH; insulin-like froth factor-I;
KW IGF-I; osteopathic; acquired immune deficiency syndrome; AIDS; cancer;
KW post-surgery; growth hormone-related deficiency; transgene; bone loss;
KW burn; post-fracture; genetic disease; gene therapy; porcine.
XX
XX Sus scrofa.
XX
XX Key Location/Qualifiers
FH Peptide 1..31
FT /label= Signal_peptide
FT Protein 32..71
FT /note= "Porcine mature GHRH"
XX
XX WO200297099-A1.
XX
XX 05-DEC-2002.
XX
XX 30-MAY-2001; 2001WO-US017573.
XX
XX 29-MAY-2001; 2001US-0294316P.
XX
XX (VALE-) VALENTIS INC.
XX (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Nordstrom JL, Draghia-Akli R;
PI
XX WPI; 2003-140478/13.
XX N-PSDB; AAD53819.
XX
XX Novel inducible growth hormone releasing hormone expression system in
PT which expression of gene encoding GHRH that induces production of insulin
PT -like froth factor-I in vivo, is not observed in absence of ligand.
XX
XX Claim 36; Fig 12; 45pp; English.
XX
XX The invention relates to an inducible growth hormone releasing hormone
CC (GHRH) expression system in which expression of gene encoding GHRH that
CC induces production of insulin-like froth factor-I (IGF-I) in vivo, is not
CC observed in absence of ligand. The invention is useful for preparing a
CC pharmaceutical composition for indications such as increasing weight,
CC increasing lean body mass, decreasing fat mass, conversion to anabolism

CC for a catabolic state associated with wasting, and increasing bone area,
 CC content and density. It is useful for regulated GHRH expression in vivo,
 CC for use in the indications, where the wasting is associated with cancer,
 CC acquired immune deficiency syndrome (AIDS), burns, or post-surgery. It is
 CC also useful for treating the growth hormone-related deficiencies
 CC associated with the growth hormone pathway, treating growth hormone-
 CC related deficiencies associated with genetic disease, and to prevent or
 CC treat bone loss, as in elderly, or post-fracture. It is also applied in
 CC vivo to effect expression of a transgene for gene therapy purposes. The
 CC present sequence is porcine pre-pro GHRH protein used in the invention
 XX
 SQ Sequence 71 AA;

Query Match 100.0%; Score 198; DB 6; Length 71;
 Best Local Similarity 100.0%; Pred. No. 7.6e-18;
 Matches 40; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40
 |||||
 Db 32 HVDAIFTSYRKVLAQLSARKLLQDILNRQOGERNQOQA 71
 |||||

RESULT 8

AAO30852
 ID AAO30852 standard; protein; 40 AA.
 AC AAO30852;

DT 22-SEP-2003 (first entry)

XX Growth hormone releasing hormone (GHRH) mutant protein, TV-GHRH.

XX Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
 KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
 KW lymphoma; weight loss; lymphopenia; appetite stimulant; anorectic;
 KW growth hormone releasing hormone; GHRH; mutant; mutein.

OS Unidentified.

FH Key Location/Qualifiers

FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"

XX WO2003049700-A2.

XX 19-JUN-2003.

XX 10-DEC-2002; 2002WO-US039509.

XX 11-DEC-2001; 2001US-0339610P.

XX (ADVI-) ADVISYS INC.

XX (BAYU) BAYLOR COLLEGE MEDICINE.

PI Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
 PI Hahn K, Brenner MK;

XX WPI; 2003-558968/52.

XX Treating anemia, immune dysfunction, tumor, increasing total red blood
 PT cell mass, reversing wasting or abnormal weight loss in subject, by
 PT administering nucleic acid construct encoding growth-hormone-releasing-
 PT hormone.

XX Claim 13; Fig 1; 212pp; English.

XX The invention relates to compositions and methods for plasmid-mediated

CC supplementation. The method is useful for treating anaemia, tumour (such
 CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune
 CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
 CC kidney failure, for preventing the development of metastatic tumour, for
 CC increasing total red blood cell mass, for reversing wasting, abnormal
 CC weight loss or suppression of lymphopenia, in a subject, or for
 CC increasing weight gain in a chronically ill subject, or for extending
 CC life expectancy for a chronically ill subject. The present sequence is a
 CC growth hormone releasing hormone (GHRH) mutant protein. This sequence is
 CC used to illustrate the method of the invention
 XX
 SQ Sequence 40 AA;

Query Match 97.0%; Score 192; DB 6; Length 40;
 Best Local Similarity 97.5%; Pred. No. 2.4e-17;
 Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40
 :|||
 Db 1 YVDAIFTSYRKVLAQLSARKLLQDILNRQOGERNQOQA 40
 :|||

RESULT 9

AAO29862
 ID AAO29862 standard; protein; 40 AA.
 AC AAO29862;

DT 27-AUG-2003 (first entry)

XX Growth hormone releasing hormone (GHRH) mutant protein, TV-GHRH.

XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
 KW bone healing; gene therapy; anorectic; osteopathic; mutant; mutein.

OS Unidentified.

FH Key Location/Qualifiers

FT Misc-difference 2 /note= "Wild-type Ala is substituted with Val"
 FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
 FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
 FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"

XX WO2003038112-A2.

XX 08-MAY-2003.

XX 25-OCT-2002; 2002WO-US034275.

XX 26-OCT-2001; 2001US-0357808P.

XX (BAYU) BAYLOR COLLEGE MEDICINE.

PI Draghia-Akli R, Schwartz RJ;

XX WPI; 2003-493212/46.

XX Decreasing body fat proportion, increasing lean body mass, bone density
 PT or bone healing rate by delivering into cells of the subject a nucleic
 PT acid expression construct that encodes a growth-hormone-releasing-hormone
 PT (GHRH).

XX Claim 167; Fig 1; 165pp; English.

XX The invention relates to a method for decreasing body fat proportion,
 CC increasing lean body mass, bone density or bone healing rate in a subject
 CC which involves delivering a nucleic acid expression construct that
 CC encodes a growth hormone releasing hormone (GHRH) or its functional
 CC biological equivalent into cells of the subject. The method is useful for

CC releasing-hormone (GHRH) or its functional biological equivalent. The
CC methods and compositions of the present invention are useful for altering
CC pituitary development and hormone secretion (prolactin) in the offspring
CC of a female subject given a nucleic acid expression construct that
CC encodes GHRH. They can specifically be useful in growth deficiency
CC disorders such as hypopituitary dwarfism, and where milk production and
CC egg production stimulation is needed particularly in animal breeding
CC purposes. The present sequence is a mutated version of a GHRH protein
XX
XX
SQ Sequence 40 AA;

Query Match 97.0%; Score 192; DB 7; Length 40;
Best Local Similarity 97.5%; Pred. No. 2.4e-17;
Matches 39; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKLLQDILNROQGERNQOGA 40
:|||||
DB 1 YVDAIFTNSYRKVLAQLSARKLLQDILNROQGERNQOGA 40

RESULT 11
AAO30851
ID AAO30851 standard; protein; 40 AA.
XX AAO30851;
XX
DT 22-SEP-2003 (first entry)
XX
DE Growth hormone releasing hormone (GHRH) mutant protein, TI-GHRH.
XX
KW plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
KW lymphoma; weight loss; lymphopoiesis; appetite stimulant; anorectic;
KW growth hormone releasing hormone; GHRH; mutant; mutein.
XX
OS Unidentified.
XX
PH Key Location/Qualifiers
FT Misc-difference 2 /note= "Wild-type Ala is substituted with Ile"
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
XX
PN WO2003049700-A2.
XX
XX 19-JUN-2003.
XX
XX 10-DEC-2002; 2002WO-US039509.
XX
XX 11-DEC-2001; 2001US-0339610P.
XX
XX (ADVI-) ADVISYS INC.
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
PI Hahn K, Brenner MK;
PI
PI
DR WPI; 2003-558968/52.
XX
XX Treating anemia, immune dysfunction, tumor, increasing total red blood
PT cell mass, reversing wasting or abnormal weight loss in subject, by
PT administering nucleic acid construct encoding growth-hormone-releasing-
PT hormone.
XX
XX Claim 13; Fig 1; 212pp; English.
XX
XX The invention relates to compositions and methods for plasmid-mediated
CC supplementation. The method is useful for treating anaemia, tumour (such
CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune

CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
CC kidney failure, for preventing the development of metastatic tumour, for
CC increasing total red blood cell mass, for reversing wasting, abnormal
CC weight loss or suppression of lymphopoiesis, in a subject, or for
CC increasing weight gain in a chronically ill subject or, or for extending
CC life expectancy for a chronically ill subject. The present sequence is a
CC growth hormone releasing hormone (GHRH) mutant protein. This sequence is
CC used to illustrate the method of the invention

XX Sequence 40 AA;

Query Match 96.5%; Score 191; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 3.3e-17;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQOGGA 40
:|||||
Db 1 YIDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQOGGA 40

RESULT 12
AAO29861
ID AAO29861 standard; protein; 40 AA.
XX AC AAO29861;

XX 27-AUG-2003 (first entry)

DE Growth hormone releasing hormone (GHRH) mutant protein, TI-GHRH.

XX Growth hormone releasing hormone; GHRH; lean body mass; bone density;
KW bone healing; gene therapy; anorectic; osteopathic; mutant; mutein.
XX Unidentified.

XX Key Location/Qualifiers
FH Misc-difference 2 /note= "Wild-type Ala is substituted with Ile"
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"

XX WO2003038112-A2.

XX 08-MAY-2003.

XX 25-OCT-2002; 2002WO-US034275.

XX 26-OCT-2001; 2001US-0357808P.

XX (BAYU) BAYLOR COLLEGE MEDICINE.

XX Draghia-Akli R, Schwartz RJ;

XX WPI; 2003-493212/46.

XX Decreasing body fat proportion, increasing lean body mass, bone density
PT or bone healing rate by delivering into cells of the subject a nucleic
PT acid expression construct that encodes a growth-hormone-releasing-hormone
XX (GHRH).

XX Claim 167; Fig 1; 165pp; English.

XX The invention relates to a method for decreasing body fat proportion,
CC increasing lean body mass, bone density or bone healing rate in a subject
CC which involves delivering a nucleic acid expression construct that
CC encodes a growth hormone releasing hormone (GHRH) or its functional
CC biological equivalent into cells of the subject. The method is useful for
CC decreasing body fat proportion, for increasing lean body mass, bone
CC density or bone healing rate, or for altering lean body mass in a

CC subject. It is used in gene therapy. The present sequence is GHRH mutant
CC protein. This sequence is used to illustrate the method of the invention

XX Sequence 40 AA;

Query Match 96.5%; Score 191; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 3.3e-17;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQOGGA 40
:|||||
Db 1 YIDAIFTNSYRKVLQAQLSARKLLQDILNRQGGERNQOGGA 40

RESULT 13
ABR84638
ID ABR84638 standard; protein; 40 AA.
XX AC ABR84638;

XX 18-DEC-2003 (first entry)

DE Growth hormone releasing hormone mutant SEQ ID NO: 2.

XX Human; growth hormone releasing hormone; GHRH; pig; gene therapy;
KW intergenerational growth promotion; pituitary gland; mutein; mutant;
KW hypopituitary dwarfism.

XX Unidentified.

XX Synthetic.

XX Key Location/Qualifiers

FH Misc-difference 2 /note= "wild-type Ala substituted by Ile"
FT Misc-difference 15 /note= "wild-type Gly substituted by Ala"
FT Misc-difference 27 /note= "wild-type Met substituted by Leu"
FT Misc-difference 28 /note= "wild-type Ser substituted by Asn"

XX WO2003066825-A2.

XX 14-AUG-2003.

XX 06-FEB-2003; 2003WO-US003640.

XX 07-FEB-2002; 2002US-0355566P.

XX (BAYU) BAYLOR COLLEGE MEDICINE.

XX Draghia-Akli R, Khan A;

XX WPI; 2003-731498/69.

XX Changing the pituitary lineage in an offspring from a female subject
PT given a nucleic acid expression construct that encodes GHRH, useful in
PT treating growth deficiency disorders such as hypopituitary dwarfism.

XX Disclosure; Page 70-71; Opp; English.

XX The present invention relates to a method of changing the pituitary
CC lineage in an offspring from a female subject. This comprises delivering
CC a nucleic acid expression construct into cells of the female subject,
CC where the delivery is completed prior to or during a gestation period of
CC the offspring and the nucleic acid expression construct comprises a
CC promoter, a nucleotide sequence and a 3' untranslated region, and
CC delivery is completed under conditions where expression of the nucleotide
CC sequence results in the changing of the pituitary lineage in the
CC offspring. The promoter in the method cited comprises a myogenic promoter
CC and the nucleic acid expression construct encodes a growth-hormone-
CC releasing-hormone (GHRH) or its functional biological equivalent. The
CC methods and compositions of the present invention are useful for altering

CC pituitary development and hormone secretion (prolactin) in the offspring
CC of a female subject given a nucleic acid expression construct that
CC encodes GHRH. They can specifically be useful in growth deficiency
CC disorders such as hypopituitary dwarfism, and where milk production and
CC egg production stimulation is needed particularly in animal breeding
CC purposes. The present sequence is a mutated version of a GHRH protein
XX
SQ Sequence 40 AA;

Query Match 96.5%; Score 191; DB 7; Length 40;
Best Local Similarity 95.0%; Pred. No. 3.3e-17;
Matches 38; Conservative 2; Mismatches 0; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKKLQDILNRQOGERNOEQGA 40
:|||||
Db 1 YDAIFTNSYRKVLAQLSARKKLQDILNRQOGERNOEQGA 40

RESULT 14
AAO30853
ID AAO30853 standard; protein; 40 AA.
XX
AC AAO30853;
XX
DT 22-SEP-2003 (first entry)
XX
DE Porcine growth hormone releasing hormone mutant protein, 15/27/28-GHRH.
XX
KW Plasmid-mediated supplementation; anaemia; tumour; adenoma; melanoma;
KW sarcoma; immune dysfunction; carcinoma; leukaemia; kidney failure;
KW lymphoma; weight loss; lymphopoeisis; appetite stimulant; anorectic;
KW growth hormone releasing hormone; GHRH; mutant; mutein; porcine.
XX
OS Sus scrofa.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
XX
FN WO2003049700-A2.
XX
PD 19-JUN-2003.
XX
PF 10-DEC-2002; 2002WO-US039509.
XX
PR 11-DEC-2001; 2001US-0339610P.
XX
PA (ADVI-) ADVISYS INC.
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
XX Draghia-Akli R, Carpenter RH, Kern DR, Schwartz RJ, King G;
PI Hahn K, Brenner MK;
XX
DR WPI; 2003-558968/52.
XX
PT Treating anemia, immune dysfunction, tumor, increasing total red blood
PT cell mass, reversing wasting or abnormal weight loss in subject, by
PT administering nucleic acid construct encoding growth-hormone-releasing-
PT hormone.
XX
PS Claim 13; Fig 1; 212pp; English.
XX
CC The invention relates to compositions and methods for plasmid-mediated
CC supplementation. The method is useful for treating anaemia, tumour (such
CC as adenoma, mast cell tumour, melanoma, sarcoma or solid tumour), immune
CC dysfunction, carcinoma (benign or malignant), leukaemia, lymphoma or
CC kidney failure, for preventing the development of metastatic tumour, for
CC increasing total red blood cell mass, for reversing wasting, abnormal

CC weight loss or suppression of lymphopoeisis, in a subject, or for
CC increasing weight gain in a chronically ill subject or, for extending
CC life expectancy for a chronically ill subject. The present sequence is
CC porcine growth hormone releasing hormone (GHRH) mutant protein. This
CC sequence is used to illustrate the method of the invention
XX
SQ Sequence 40 AA;

Query Match 94.9%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 7.9e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 HVDAIFTNSYRKVLAQLSARKKLQDILNRQOGERNOEQGA 40
:|||||
Db 1 YDAIFTNSYRKVLAQLSARKKLQDILNRQOGERNOEQGA 40

RESULT 15
AAO29863
ID AAO29863 standard; protein; 40 AA.
XX
AC AAO29863;
XX
DT 27-AUG-2003 (first entry)
XX
DE Porcine growth hormone releasing hormone mutant protein, 15/27/28-GHRH.
XX
KW Growth hormone releasing hormone; GHRH; lean body mass; bone density;
KW bone healing; gene therapy; anorectic; osteopathic; porcine; mutant;
KW mutein.
XX
OS Sus scrofa.
OS Synthetic.
XX
FH Key Location/Qualifiers
FT Misc-difference 15 /note= "Wild-type Gly is substituted with Ala"
FT Misc-difference 27 /note= "Wild-type Met is substituted with Leu"
FT Misc-difference 28 /note= "Wild-type Ser is substituted with Asn"
XX
FN WO2003038112-A2.
XX
PD 08-MAY-2003.
XX
PF 25-OCT-2002; 2002WO-US034275.
XX
PR 26-OCT-2001; 2001US-0357808P.
XX
PA (BAYU) BAYLOR COLLEGE MEDICINE.
XX
PI Draghia-Akli R, Schwartz RJ;
XX
DR WPI; 2003-493212/46.
XX
PT Decreasing body fat proportion, increasing lean body mass, bone density
PT or bone healing rate by delivering into cells of the subject a nucleic
PT acid expression construct that encodes a growth-hormone-releasing-hormone
PT (GHRH).
XX
PS Claim 167; Fig 1; 165pp; English.
XX
CC The invention relates to a method for decreasing body fat proportion,
CC increasing lean body mass, bone density or bone healing rate in a subject
CC which involves delivering a nucleic acid expression construct that
CC encodes a growth hormone releasing hormone (GHRH) or its functional
CC biological equivalent into cells of the subject. The method is useful for
CC decreasing body fat proportion, for increasing lean body mass, bone
CC density or bone healing rate, or for altering lean body mass in a
CC subject. It is used in gene therapy. The present sequence is porcine GHRH
CC mutant protein. This sequence is used to illustrate the method of the
CC invention

XX
SQ Sequence 40 AA;
Query Match 94.9%; Score 188; DB 6; Length 40;
Best Local Similarity 95.0%; Pred. No. 7.9e-17;
Matches 38; Conservative 1; Mismatches 1; Indels 0; Gaps 0;
QY 1 HVDALFTNSYRKVLQALSARKLLQDILNRQGGERNQEQGA 40
Db :|||||
1 YADALFTNSYRKVLQALSARKLLQDILNRQGGERNQEQGA 40

Search completed: July 12, 2004, 20:46:06
Job time : 50.5 secs

